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ORIGINAL ARTICLES.

THE USE, TWENTY-FIVE YEARS AGO, OF POLARITY, FOR LOCATING THE WHEREABOUTS OF A LEADEN BULLET DEEPLY IMBEDDED IN THE BODY.

Read in the Section of Surgery and Anatomy, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

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In the records of most, even of the greatest of this world's heroes, events of much moment, which it was important at the time of their occurrence, should not be made known, have often been so completely, and long suppressed as to subsequently render the possibility as facts almost incredible. Such may seem with some of my hearers to be the case as regards many of the circumstances associated with the incident which it is my purpose to relate in this communication.

It occurred in the life of one of the truly great heroes of our internecine war, and, at a period when its publication would have been demoralizing to the Union cause, yet it involved such a brief space of time as not to necessitate its being recorded, or any account made of it; and the events which rapidly followed in this hero's life were of such a momentous character as to entirely overshadow it.

This officer's injunction to me on my first seeing him on this occasion was for the greatest secrecy as to his being in Philadelphia under my care, as well as to the character of his injuries, and was absolute, and given to all others as was evidenced by how universally it was heeded. It was, I believe not known at all at the quarter-master's office in Philadelphia until after he had been on and gone back to his post again. Finally the injunction to secrecy with me was, as a consequence of his rapid convalescence so removed within three days of his reaching me as for him to permit my describing to my hospital class what I had done in the case. Still I was not then or afterwards, as he said, to anticipate the account he would give of the event in his autobiography. A quarter of a century has since passed away and for more than half of that time this hero has been in his grave, and that too without any detailed account of his life having yet been published. The recital of these facts is therefore essential as a prelude for the proper comprehension of the form of account which I shall now give of the circumstances pertaining to it, and must also serve to explain the omission of names and other facts, the narration of which would no doubt add vastly to it as a whole.

On the evening of Saturday, June 20th, 1863, I received a telegram at my office to call the following morning at a private residence in Philadelphia, which I knew as that of an officer in the Union army, and, recalling the fact that he had been in Philadelphia, about a year previous, to see me for a few days on account of a wound he had then received in battle, I at once thought he had again been so injured and was prompt in making my visit to his house the next morning at the time when it would be, then Sunday morning, least likely to attract attention in the neighborhood; for I knew, from the previous occasion, that he would be desirous of preventing any knowledge of his being home, getting abroad.

As my carriage passed along a cross street in my way there I noticed a field coat hanging from the rear of the second story of his house and then surmised that he was undoubtedly home and this time most likely wounded in the body. On entering the house I was told that he had been brought home fatally wounded by a ball in his lungs and I was taken immediately to his bedroom. There I found him sitting up in bed, evidently in much suffering, but on his seeing me he was not willing to answer a single question until he said that he must be back at his post within five days, and, that I was to observe the greatest secrecy and silence. All of which showed, as I knew him, to be a man of strong nervous temperament, a state of much excitement, and my first action then was that usual with a patient suffering from an injury in the chest, namely, the sounding of that part of his body by percussion, directing him not to talk whilst I did so. It surprised me exceedingly, and I immediately ran one of my

ears up and down each side and on the front and back of his lungs with sufficient care and slowness to allow me to detect his breathing throughout both. Then I could suppress my surprise no longer and exclaimed, "Why there is no bullet in either one of your lungs, there is no sign of either side having been penetrated by one." "Ah, wait until you have me thoroughly uncovered, and have explored the wound," said he. On removing his clothing I found a single, clean-cut wound, vertical in direction, about half an inch in length, located close to the outer border of the left shoulder blade, just where that bone usually rests in front of the eighth rib. There were no signs of the rib having been broken, or even uncovered, of the spaces between it and its fellows either above or below, having been penetrated; though I searched for such most faithfully, with the aid of a delicate probe and sounding board attached to it; my attention was then directed to his breathing for the second time. His respirations were evidently those purely characteristic of a man, there was no heaving of the upper chest. He was leaning forward and especially to the left side, as though he was constantly being impelled to prevent the expansion or separation of his ribs there. His respirations were short and frequent, and his heart was much agitated. His temperature above normal. To determine accurately his pulse I drew out my watch from my vest pocket, by means of its guard to which was attached at its far end a small compass which I had been wearing there for many years as others did various forms of "charms." Its presence suggested at once in connection with the character of the cut which the ball had made through his clothing and in his side, the possibility that the said bullet might be a steel one, as the Southerners were then using such in the rifles recently imported for them from England. Following up quickly this idea I carried this compass close to the integuments across the patient's chest, up and down, and in every conceivable manner and direction. At first the needle did not seem to be disturbed any more than was naturally consequent to the changes made of its poles by those movements. This was particularly the case when the dial plate was being held horizontally and in close proximity to the wound of entrance; the patient being seated astride of a chair with his back toward a window facing North. When the needle was then parallel to the side of chest its North pole pointed to the window and was quiet in that position; but as I moved the instrument more around toward the spinal column I thought I perceived some agitation of its needle greater than that due to the movement and that this was greatest when it was at the level of the wound of entrance and nearest to the base of the shoulder blade. The patient had no recollection of the moment of his receiving the ball or how it reached him; indeed he had not become aware of his being wounded until his attention was called to a free bleeding on his outer clothing above his sword belt. He was, at the time, making reconnoissance of his opponents who were in advance on his bridle path.

As he further answered in the affirmative to my queries that he was mounted and holding a high rein, I took his left fore-arm and supporting the elbow nearly on a level with the front border of the arm-pit of that side and drawing it forward and across the chest I caused him considerable pain in the vicinity of where I had previously noticed the agitation in the magnetic needle to be the greatest. Putting the compass in the same attitude as before, I again got the agitation still better marked. Then, laying down the instrument which I had been holding with my watch by my right hand, I found, by pressing the index and middle fingers of that hand on the spot indicated, that there was some ill defined hardness, firmer pressure on which caused him more decided pain and I was then confident I had there discovered the locality of the ball. This I stated to the patient, endeavoring in doing so, to have him understand how all previous examinations had failed to reveal its whereabouts, but I was quickly interrupted by his saying, "Oh, I have no fault to find with what has been done or left undone. What I want to know is whether you can get it out; and if so, I want you to do it as speedily as possible." For that purpose I provided myself with a small scalpel, a pair of bullet forceps, a grooved director. And, as he was not willing to take ether or choloform, I used the analgesic effect of ice sprinkled well with table salt and pressed firmly on the place for some eight or ten minutes, when the surface so pressed on, which was for the extent of about three inches in diameter, became purplish white and was found to be insensible to the touch. Then, on removing the piece of ice and placing the compass in the position in which it had showed the greatest disturbance before, it became more agitated than ever and I proceeded to make an incision there on to the posterior border of the shoulder-blade at an angle of about forty degrees to the spinal column and over two inches away from it. This was a straight cut of an inch in length, so directed as to separate rather than to divide the fibres of the muscles which I knew I must get through there, to reach the desired object. That incision, at a depth of about two inches, brought the point of my scalpel directly on to a hard substance in surrounding soft muscular tissue, which, by further contact, was readily recognized as metal, and which, after some expanding of the cut, was shown to be the bullet between the two great muscles—the subscapularis and the serratus magnus—which are fastened together on the base of the shoulder-blade, and I had concluded had to

be cut through before I began the operation. The completion of the operation—that is the extraction of the bullet—was quickly effected, and the brief and partial freezing of the parts through which it had to be done, rendered it one of absolutely no pain whatever to my patient. Indeed, he seemed at first unwilling to accept my assertion that I had succeeded in my undertaking, but his conviction to the contrary was promptly brought about by placing the bullet in his hand. I then cleansed the wound and brought its edges together carefully, so that they were in perfect apposition throughout, and secured them, so, by means of Goddard's strips of gauze and collodion supported by a roller bandage which was made to retain the arm in perfect rest. I then had my patient put into his bed, and, after directions about his diet, and that he should be kept perfectly quiet, I left him, going to an adjoining room, where I carefully washed and examined the bullet and then gave it to the patient's wife for her to keep, and that too without any comment upon it. On calling in the evening and learning that my patient was sleeping quietly, I left the house without disturbing him.

On my visiting him the following morning he quickly called my attention, as I had expected, to the fact that the bullet was not, after all, a steel one, but one of lead, or at least of a soft metal, for he had had it thoroughly cleansed and then scratched across the surface by a knife with which it was readily uncovered and penetrated; saying as he had the ball handed to me, "Your compass could not have really helped you to find it, for it is leaden, and every school boy knows that anything of lead cannot disturb the pole of a compass." "Oh," I answered, "Such used to be considered correct but, as far back as 1829, Bailli showed that bismuth would act in the opposite direction to iron on the magnet." This I said in the spirit of playful humor and was about to remark further, that Faraday had, something like forty years previously, shown the power of a great variety of articles; of liquids; of gases, and of salts, including those of lead, to excite motions of various kinds in the magnet, when my patient manifested some dissatisfaction in his manner and I saw I had spoken imprudently, and not only checked myself, but at once agreed not to talk of the matter again, as I desired to avoid doing or saying anything which might interfere in the least with his rapid recovery. How well I accomplished this purpose was evident from the rapidity with which he did recover. There was no suppuration whatever along the track of the ball or from where it was removed, and he returned to his duty on the night of Friday, June 26th, within five days of the time of his being subjected to the operation by me.

The compass I used in this search was a Christmas gift from a playmate when I was a boy and had not only been constantly worn on my guard, from the time I first had a watch in those days, but in my student life in Philadelphia, Paris, London and Dublin. It had served its purpose in my walks in the vicinities of those places and as a guide through the charming regions known as the Lake Districts of England and those of Wicklow and Arklow in Ireland.[1] It consisted of two hemispherical bowls of gold of the relative sizes for their outer rims of the one cent and two cent coins, United States currency of the present day. The larger measuring seven eighths of an inch and the smaller thirteen sixteenths of an inch in their diameters respectively, fastened together by two gympal pins so that the latter bowl could not only always rotate inside the former, but would have its face, or equatorial surface, of glass, constantly looking up and horizontal. Through that glass could readily be seen the dial plate with its plain black and very distinct letterings; the needle, mounted on the pivot by its flat cap of brass which allowed the utmost freedom of motion in every direction, the inner surface of the glass near enough to this cap to prevent its getting off the pivot, but far enough away for the free dipping of either pole—the actual length of the needle from one extremity to the other, just one half an inch—that of the sections, North and South, of the cap, three sixteenths each, leaving just one eighth of an inch for the diameter of the cap. The north section of the needle was of a positively dark bluish hue whereas its south section was of an equally distinct whitish steel color. The dip of the far end of the north section and the corresponding elevation of the extreme of the south section from the centre, all made this trifling looking "little charm," an instrument of real value for experimental investigations.

The loadstone and the compass were the subjects of scientific interest to which the earliest of my recollections could ever refer. I had six brothers and two sisters older than myself, so that, when I began to get out of the nursery at home, the companions of the oldest of them were at an age to be objects of special attention for me, particularly as to all they said and did, and as one of the most companionable of them was then preparing to enter the navy, he had *his* loadstone and *his* compass, the mysteries of which he was always ready to show to even the least of us all. The naval battle he treated some of us to on one occasion in a wash-tub in my father's garden, stands farthest back in, but never can be lost to, my memory. The ships were represented by chips of wood with well-defined bows and sterns, and two or three masts according as to whether they were to be considered as sloops or frigates

[1] The initial picture of this paper is an accurate representation of it, both as to size and appearance, with the needle pointed as though the reader was sitting with the top of the page looking East.

of war, which were the characters of fighting vessels in those days. Each single decker had its proper number of guns made of fragments of sewing needles extending across its upper surface, the points, heads, and broken ends of which fragments, were each charged by the loadstone for special sides, that is, by the north pole for the right side, and by the south pole for the left, so that when these chips were pushed from opposite sides and made to approach near enough to exert the magnetic influence of their bits of needles on each other, one set repelled the other—they ran away from each other—the lesser ones apparently fleeing from the larger ones more rapidly and being made to turn more away so that the scattering of them was not symmetrical, whereas when they were started from the same side of the tub and approached, they very quickly collided, the larger ones evidently running with more force into the smaller ones and striking them at such an angle as in some instances to upset the ones so impinged upon. The angles of impingment gave as much, if not more, variety to this form of battle than occurred in the other, and always made its repetition more enjoyable.

Then, again, another frequent visitor at my father's house, and, companion of some of my older brothers in my early boyhood, was one of the sons of Dr. John Redmond Coxe, professor in the medical department of the University of Pennsylvania, and living at Ninth and Walnut streets (in the house next but one to that of my father) and which was afterwards occupied by Dr. Hugh L. Hodge, when he was a professor in that same institution. There may be some of my hearers to-day who recollect the offices attached to that house and the immense collection they contained in Professor Coxe's days, of books, philosophical apparatuses, and instruments of various kinds. I remember, as though it was but yesterday, being on one of those days taken by that son of the professor into the front room of those offices and shown many compasses and electric machines, and especially the spark which the latter produced. I was then, first of all, warned against touching the machine by which those sparks were being generated lest I should get burnt by them, but shortly afterwards I was induced to take hold of a handle which was attached to a covered wire which was suspended on the wall around the room and whilst holding it my entertainer passed a spark to the other end of that wire and I instantly felt the shock from it and I screeched for terror. That incident was of course not soon forgotten and was quickly recalled in all the details when Morse's proposal to create a telegraph by sending such sparks along insulated wires mounted on high poles in the roads between various places was first made known to me.

When older my delight was to revel in all the oddities and curiosities of my father's library, which had been collecting for more than three generations in his family. I was not slow then in ascertaining the whereabouts not only of his father's (William Hewson, the anatomist) books on blood and the lymphatics, but the MSS. for the same, and for all his papers to the Royal Society of London, the "Copely Medal" awarded to him by that society for his being the greatest discoverer in science for the year 1769. With them were stored many of the original drafts of Franklin's letters to the scientists written by Mary Stevenson (afterward William Hewson's wife) whilst Franklin was an inmate of her mother's house, Craven street, Strand, London, *i.e.*, during all the time he was agent for the Colony of Pennsylvania to the British court. Here came an extension of my interest and knowledge in the magnet and subjects relating to it. Before I was fourteen years old I had made for myself a generator of electricity and a Leyden jar for its accumulation and preservation.

Hence, when I went to London for the first time, in 1850, shortly after receiving my degree of M.D., I had not only my "little charm" on my watch-guard, but was prepared, with long accumulating interest, to enjoy everything I might learn there about the subject, and through very fortunate circumstances I immediately on my arrival had free access given me to Faraday's laboratory and studio. There I enjoyed with more than ordinary delight the appliances by which that great philosopher, years before, had startled the scientific world by demonstrating the existence of *polarity* in everything; explaining thereby, not only, the long familiar experiment of the arranging of particles of iron-filings in curves, when they were placed on a sheet of white paper near a magnet, but those of the hairs of animals, of the human body also, of the feathers of birds, of the stems, blossoms, flowers and foliage of all kinds of vegetable life. There Faraday had demonstrated magnetism and also the presence of distinct polarity, in each particle of all such substances, the oppositely polarized end of which particles being the occasion of their cohesion together and the surplus, over and above needed for that purpose, he there had shown was the occasion of the curves in nature.

My dear "little charm" had then fresh interest given to me. For after those delightful and well to be remembered visits at Faraday's rooms, I was led constantly to study the disturbing influences which many articles seemed to have on its poles. Thus, when stage-coaching immediately afterwards in England—a luxury rarely to be met with even in those days—or when riding

NOTE.—This device of Prof. Coxe was undoubtedly the basis of the claim made for him as an originator of the electro-magnetic telegraph before Morse. Prof. Tyndall (notes of two courses of lectures before the Royal Institute) fixes the date of Coxe's proposal about 1808.

in railway cars or walking, I would take my bunch of keys and study what effects its individuals produced on the needle. Some, many indeed, had no effect on its north pole when near it, others would increase when there its dip; others again, when approached to its south pole, would agitate it or cause its nearer contiguity to the glass and keep it there.

These circumstances had been quickly recalled to my mind, and furthermore, when in connection with this case I afterwards took up the subject anew, I found much in addition that was of special interest relating to it, and to which I must make some references before closing this communication.

First, there were the physical conditions of the bullet itself and its immediate surroundings of which I had to take account in estimating or appreciating its power to disturb the polarity of my compass. Its metal (lead) as shown by Faraday as far back as 1830 was not only capable of acting on the south pole of a compass as in contrast with iron and zinc which acted on the north pole, but such action was to be found much increased by the locality where it was lodged, for there the heat and moisture was peculiarly great, as Lavoisser had demonstrated as long ago as 1777. He then showed that those conditions of heat and moisture were not only greater in a locality like that between the subscapularis and latissimus dorsi, than immediately under the skin, but than in the lungs or plural cavities themselves. Mariani (*Annales de Chem.*, p. 40) states that they—heat and moisture—according to his researches increased this power of lead to act on the south pole of the compass, and Mons. de la Rive more recently (*Biblioth Universal*, vii. p. 388, 1837) has stated that the effect of 5° of increase of heat alone produced in his experiments a deflection in the galvinometer he used of from 12° to 45° when applied to the south pole, whereas the same produced no effect when applied to the north pole. Faraday (series xvii, p. 64 of his 2nd volume), speaking of this statement of De la Rive, says that in a repetition of those experiments he has "no doubt that the phenomena will prove to be virtually the same." Then, also, Claude Bernard, whom we must all recognize as one of the most accurate experimental physiologists of the present time says that hot air acting on the skin creates a rise of temperature more rapid than when the same is merely introduced into the pulmonary vessels. He proved also that when the hot air is damp the phenomena take a more rapid course and were as great as at dry, a lower temperature, and furthermore that dampness promotes a rise of temperature by itself.

Secondly, there were the physical conditions about the compass itself of which I was not to lose sight in my estimation of the circumstances which affected the phenomena I have related. Of these I was well prepared to make good count likewise through previous study. I refer here to the details of materials I collected prior to 1857 for my paper "On the influence of the weather on the results of amputations in the Pennsylvania Hospital during a period of thirty years." (See Pa. Hosp. Report for 1857.)

Before entering on the consideration of these conditions we must have some accurate and definite scientific idea as to what the needle of the compass is. Faraday states (series xxvi. for Oct., 1850, p. 254) it is "a balance on which all the magnetic power around a given locality fastens itself, and it shows for each place every variation in their amount or disposition, whether that occurs near or far off. Its mean position is the normal position, and as regards atmospheric changes the fixation of the lines of force in the earth (2919) is that which tends to give the lines a standard position (exclusive of secular changes) and so bring them and the needle back from their disturbed to their normal state." The size of the needle of the compass I used in this case I have given (on p. 10 MSS.) as that of one half an inch from the end of one pole to that of the other. This according to the best of authorities (Charles Augustine de Colomb Sur l'Elect. et Magnetisme, Paris, 1789? and Capt. Kater, the inventor of the prismatic compass) was sufficient to manifest all the various secular disturbing influences within several inches of its locality and possessed advantages over one that was more than five inches long, for in the latter several poles are apt to be produced, the effect of which is to lessen the force of the single polarity sought for. It is also composed of shear steel which according to those authorities was found to be the best material for the purpose of making a very sensitive compass needle with.

With these facts before us we may now fairly take up the consideration of the various physical conditions surrounding the instrument which might depreciate or increase the power of the leaden bullet to act on the needle. These conditions were essentially those of the atmosphere and of what could affect it where the patient was at the time. Here we have to take account of the temperature of the air, the presence or absence of the sun's rays, the state of the barometer, the presence or absence of moisture, the actual locality of the patient as to his being in or out of the open air, as well as to the relations of his body to the points of the compass, and also even to the time of the day at which the explorations were made; for these are all well recognized as disturbing causes of such conditions. Even Faraday, whom I have quoted from very freely heretofore on account of his being the most accurate and logical writer on the subject we can refer to in any language, says (2936), "The well-known action of the sun on the needle is very indirect;" "the sun at a given

place affects the atmosphere, the atmosphere affects the directions of the lines of magnetic force, those lines of force there affect those at any distance and they affect the needles which they respectively govern." Again I can quote the facts from said authority that "the variations in the intensity of atmospherical magnetism is greater before the sun crosses the meridian" (*i. e.*, before midday), and "when he is uncovered or shining brightly in the place where the observations are being made."

The concurrence of all those conditions in favor of the action of the leaden bullet on the compass proved to me most singular. The time was before midday—it was a hot day in June, whose early morn was close and overcast, but whose sky was quickly cleared as the sun approached the meridian and shone through the open window before which I had my patient seated astride of a chair, with such brilliancy as to cause those present to hail his rays with warm expressions of delight at the time, the patient specially exclaiming, "Oh, that is a hopeful and encouraging sign"—an exclamation to which I readily assented. I had indeed to push him somewhat away from the window to get him out of the sun as I arranged things for the operation, but in doing so I kept his left side nearer to the window than its fellow and so, without any such purpose in my mind, I placed him more correctly on a line with his back looking due north than he was before; the surface of his back having been previously parallel to the window, and the latter being parallel to the main street, was therefore actually nearly two full points (of 32°) out of the way.

Finally, I must refer to the action of my compass when placed on the patient's back whilst that surface was so frozen by the direct contact of the ice and salt as to allow of its being cut into immediately afterwards, with the utmost freedom, without causing him pain. This action was one of a positive increase of the attraction and of the agitation of its south pole over what I had noticed as occurring with it in the same locality before the application of the freezing process. No time was noted as to the length of that application before I tested its effects on the needle. It was recorded that the surface for an area of 3 inches was of a purplish white hue, hardened and insensible to the touch. The inner bowl of the instrument was then put in close contact with that surface and when there it was moved about, in a range of 2 inches of the whereabouts, as I then supposed, of the ball; the needle was then more agitated and more markedly attracted to one special point than ever before. The change in temperature which the application of the ice and salt had caused was from without inwards and was greatest on the surface of the skin. It was never such as to seriously affect the vitality of any of the tissues. Those of them which were readily visible, soon after their being cut into, quickly recovered their natural tints and gave vent to some bleeding. That in which the ball was lodged contained enough of old clot and serum to surround the ball and was positively warmer than the surface of points considerably far away. It had not been reached by the freezing, and showed in the changes of its effused blood the effects of heat and moisture, rather than of cold, certainly than, of that sufficient to produce solidity and dryness of the other tissues. A study of the changes in those tissues which constituted the medium of communication between the ball and the needle then made it quite apparent that it was in them that was to be found the cause or causes for the increase of the disturbances of the needle over what had been previously observed. The freezing application used in this instance can, according to Sir Humphrey Davy, reduce the temperature of substances and liquids 50° F., the resulting solidification being essentially dependent on changes in the water present in them. It starts when that fluid gets down to the temperature of 39° F. The water then begins to assume an opaqueness which reaches its completeness when every primitive particle of water in it has actually gotten own to 32° F. They are solidified at that temperature into a mass which is lighter than their original bulk of water, and was first shown by Boyle to be one-ninth greater in bulk. This expansion has been shown also to equal a force of 27.720 lbs. for each cubic inch. The forming of ice is attended by an arrangement of the primitive particles of water with each other different from that which existed in their previous state They have a greater attraction set up for each other than existed before, and so become separated more or less completely from substances or fluids previously suspended or maintained between them, an action which has been used, as distillation is, to free fluids and substances of their superabundance of water or, in other words, to concentrate their strength. The facts as regards the reduction of temperature which I have now related as concerned on the solidification of water will aid us materially in the explanation of the disturbances of the compass noticed after the application of the freezing process to the patient's back. The tissues under it had become decidedly opaque, dry and solid, as well as devoid of sensibility. The first three (physical) conditions evidently being the effects of the reduction of the temperature of the tissues below 39° F., but as those tissues did not have their vitality materially disturbed, it is equally evident that their temperature never got below 32° F. Say it was only 34° and we have the authority of Faraday that such a temperature would intensify the action of lead on

NOTE.—The streets of Philadelphia as laid out by Wm. Penn were intended by him not only to be at right angles to each other, but to correspond with the four main points of the compass, which they are now known not to do for the extent above specified.

the south pole of the magnet most markedly, especially when the location of the metal was no further away than 3 inches beneath the surface. We have also hosts of authorities amongst recent experimental physiologists that the changes of magnetic conductibility of human flesh arising from variations in it of temperature above or below the average of the body in health (67° F.), accurately corresponded with each other; *i. e.*, that an increase, say, of 5° above that point brought about the same effect in that respect that a decrease of the same number of degrees would. We have, however, seen that the increase of the temperature in my patient's back, although positive and readily recognizable, was not of many degrees Fahrenheit; whereas, that of loss by the freezing process must have been at least 30° of the same scale. Six times greater! I certainly do not need to pursue this point further to prove the correctness of the effects observed by me.

1434 Spruce St., Philadelphia.

TROPHOPATHY IN THE FATTY AND FIBROID DEGENERATIONS; JOINT PAPER.

Read in the Section of Practice of Medicine, Materia Medica and Physiology, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY EPHRAIM CUTTER, M.D., LL.D.,

GOLD MEDALIST OF THE SOCIETY OF SCIENCE, LETTERS AND ART, LONDON; AUTHOR BOYLSTON PRIZE ESSAY FOR 1857 ON "UNDER WHAT CIRCUMSTANCES DO THE USUAL SIGNS FURNISHED BY AUSCULTATION AND PERCUSSION PROVE FALLACIOUS?" PRINCIPAL MEDICAL DEPARTMENT OF INSTRUCTION OF THE AMERICAN INSTITUTE OF MICROLOGY, ETC., AND

JOHN ASHBURTON CUTTER, M.D., B.Sc.,

FORMERLY ATTENDING PHYSICIAN TO DISPENSARY NO. 3 OF THE INTERNATIONAL MEDICAL MISSIONARY SOCIETY.

INTRODUCTION.

The animus of this contribution is the belief of the writers that *trophopathy* (*trophos*—food; *pathos*—disease) has more to do with the cause and cure of the so-called incurable diseases than the profession gives credit to; and to show that our belief is founded on facts, we will immediately proceed to the consideration of the subject in the concrete, to wit: the reading of histories of some patients that have been under our care.

CASE HISTORIES.

Case 1.—A little more than four years ago, a gentleman brought to our office a friend, who appeared to the senior writer almost moribund; indeed, he feared that the man would die then and there. Examination showed the case to be suffering from an enlarged heart, a fibroid liver and Bright's disease of the kidneys; the urine contained albumen, casts and fatty epithelia. We will here make the note that in our study of patients for the evidence of Bright's disease, not so much attention is paid whether the casts are fatty, waxy, hyaline, etc. Amyloid bodies are usually found in the urine when the kidney is first breaking down. *But we consider no case to be full-fledged Bright's disease, till albumen, casts and fatty epithelia are found.* There may be any one of these three, or any two. It is a common matter to find such cases which are just hovering along the margin of health and disease. This patient, desperate as his case was, went under the treat- to be further on described, recovered, and ought to have been here to-day for your examination. His heart, liver and kidneys are now doing healthy work.

Case 2.—About one year before his death, America's greatest laryngologist, Dr. Louis Elsberg, came under the care of the senior writer. His case was one of Bright's disease with all the signs as before enumerated. He was placed on rigid diet and would take no medicines. This regimen was followed out for several months and all of the morphological and chemical evidences of his disease disappeared from the urine, as testified to by an eminent pathologist of New York who, unknown to us, was following his case. He was allowed some lee way in his diet. The senior writer called one morning early at his office and found Dr. Elsberg at breakfast eating freely of all the starches and sugars that were placed before him. It was said to him, "Elsberg, if you persist in this reckless diet, you will kill yourself." The medical world knows how he died suddenly of pneumonia, perhaps Bright's disease of the lungs.

Case 3.—About four years ago, a millionaire was treated for two months for Bright's disease of the kidneys and lungs. At the expiration of that time, being improved and feeling *too poor* to continue under a physician's care, he undertook the direction of his case; ate wrongly, overworked and, while superintending some repairs in his house, was poisoned with sewer gas. The doctor was sent for again, but the good work that had been done for him in the two months of treatment was thoroughly undone, and he died.

Case 4.—June, 1880, the senior writer called to see his daughter-in-law in a non-professional way. She was within three weeks of her expected confinement of her first child, and to his horror he found her bloated, and on examination the urine proved to be heavily albuminous and contained casts and fatty epithelia. She was placed on a rigid diet, but labor came on in thirty-six hours and she was easily delivered of her child, which weighed but 3½ lbs. The placenta was covered with numerous elevations which, under the microscope, proved to be made up of plates of cholesterine. Two days after confinement, a steam fire engine came to the corner where she lived, and fastening to a hydrant commenced to pump. The noise worried her; entreaties to the engineer to desist were of no avail, and the poor woman went into convulsions. The senior writer arrived

soon afterwards. She was kept under the influence of ether and was purged, but the convulsions did not cease till thirty-six hours had elapsed. She was then placed on a diet of beef-tea; no medicine. Later on broiled steaks were given her. The face was drawn to one side and her brain was very weak. The regimen was persisted in till the pathological evidences were removed from the urine, and since this time her diet has been mainly two-thirds animal and one-third vegetable. She has borne two more children, both of whom are much more rugged than the first.

Case 5.—Mrs. Blank went on treatment about four years ago, and on thorough examination was found to be sick with fibrous consumption, Bright's disease and a small fibroid tumor of the womb about the size of a man's fist. The evidences of Bright's disease disappeared, the fibroid tumor has gone, and we can say that she is cured of her fibrous consumption if there is such a thing as a cure of a chronic disease. She is now passing through the change of life and cannot be called a thoroughly well woman.

Case 6.—Three years ago, a young married woman came to our office and was found to be sick with Bright's disease of the kidneys—indeed, it is rare to find urine that contained as many casts, and of all kinds, as hers did. She was placed on treatment, and in one month's time the pathological evidences had nearly all disappeared. She persevered and is to-day enjoying good health.

Case 7.—The Rev. Dr. —, treasurer of a missionary society, came under our care about the same time as case 6. He also had Bright's disease. Was placed on treatment, though keeping at his work. His loss of flesh and strength at first greatly disturbed his wife, and it was hard work to make her believe that he should be held to the plans. After three months he took a vacation in Maine, still pursuing the plans of diet and medication, and in the fall came back to work. This case may be called *in progress*. His occupation is very laborious, tiring to the mind and full of worry. At the present he is under the plan of two-thirds animal and one-third vegetable food, eating one kind of meat and one kind of vegetable at a meal. June 18, 1889, his specimen presented no casts, no fatty epithelia and but a trace of albumen. Yet he tells us that he has never in his life worked so hard as the last month, and wonders that he holds on as well as he does.

Case 8.—In 1877, the senior writer saw in consultation a lady who was said to be dying of Bright's disease and whose attending physician wished blood to be transfused into her veins. She was as white as the sheets she lay between, was vomiting, and her urine confirmed the diagnosis made by her attendants. Before going back to Boston to get instruments to transfuse with, the senior writer sat down beside her and, taking a diet list from his pocket, asked her if she could eat the different foods named thereon. She said "no" till tripe was reached, when she said she could eat that. So ordered. On returning with instruments the next day it was found there was no need of operation, as the patient had retained the tripe and was better. In March, 1886, we were in this neighborhood operating on a case of uterine fibroid. The father expressed to the son a desire to see if this woman was alive, and on calling on her attending physician learned that she was, and on visiting her found a large, florid woman who said "that she was not much of a woman for work, but was far from being dead." It seems that she lived on tripe and milk warm from the cow, with other animal food, for over two years. By that time the evidences of Bright's disease had gradually and entirely disappeared from the urine.

Case 9.—Some years ago Miss A. B., æt. 24 years, was put on strict diet for her fibroid, which was of some years' standing; it was monolobed, interstitial, hard, invested the whole uterus and extended beyond the navel. She ate beef mostly with clear tea and coffee, and took a simple tonic. It was much against her appetite but, as she was a woman of few words and of a determined will, and had confidence in her medical adviser, she persevered until her uterine fibroid had all disappeared, and she remains to-day in perfect health. At the present, in handling these cases of uterine fibroids, both diet and galvanism are employed, the latter according to the rules laid down by the senior writer in 1871. No one can say that this case was cured by the menopause, as so many medical agnostics as to the curability of uterine fibroids by either galvanism or food or both, claim. *The history of the last eighteen years has proved conclusively that uterine fibroids are no longer opprobria medicorum.*

Case 10.—1882. Mr. H. L. H., a small, not robust man over 60 years of age, for many years had had difficult digestion, caused by overfeeding of vegetable food, so that the stomach was distended, walls infiltrated and hardened, causing a fibroid condition of the organ. When seen by the senior writer, he had been under treatment by Dr. Salisbury with hot water, chopped beef diet, stomachic medicines, etc. He ran down rapidly under the treatment, vomiting often and severely; throat sore and deglutition difficult, emaciation, weakness, some fever at times. He had fainting fits and appeared so moribund that his wife thought he would die in her arms. His hands, feet and legs were cold, circulation feeble, stomach distress great, mind clear and tractable. There were also complete dulness on percussion over the hepatic region; the abdomen empty, walls drawn toward spine, flat, hard, not tender. He took no food by the mouth but beef-tea by the rectum,

was given nitric acid sponge baths, one teaspoonful to one pint of warm water, night and morning. Biniodide of mercury, $\frac{1}{8}$ gr., was given twice a day; 1 gr. of the sulphate of quinine was sprinkled once in two hours on the tongue, which was white and coated. Compress of linen cloth wet in the nitric acid bath was placed over the hepatic region and kept there till the skin was red. Though the vomiting continued for a little time, the effect of the rectal aliment told. The administration of mercury was followed by a diminution of the liver dulness. Soon he was able to take of the beef essence by the mouth; though he had no appetite, still he kept taking it, and by degrees increased the amount till the essence of 6 lbs. of beef daily was used by oral and rectal alimentation. Moving very carefully, the rectal administration was given up and the beef essence continued by the mouth. The case slowly improved, the urine showing less and less reaction of bile, the dulness of the liver running abreast, with the exception of a few days—that is, the dulness diminished with the diminution of bile in the urine. In the course of six weeks the appetite returned, former treatment was resumed, and he was cured and remains so, 1889.

Case 11.—In 1877, Mr. Luther Whiting Mason, of Boston, was sick of pretuberculosis, was cured and went to Japan and introduced successfully Western music. While there he was again sick; the physician (an American) made out a diagnosis of Bright's disease and told him he would die if he ate animal food alone; but he did eat animal food, was cured and is here to-day.

Case 12, eight years ago was also sick of Bright's disease of the kidneys and was cured by the treatment to-day indicated. He is here for your inspection.

Case 13 five years ago came under the same treatment for the same disease; has been cured, *i. e.*, the morphological and chemical evidences have disappeared from the urine and he attends to his work. He is present to-day.

Case 14.—In 1876, a middle-aged mother of a large family lay sick in bed of great grief at the loss of her last daughter, who had died from effects of the perforation of the vermiform appendix by an orange seed. There were present cardiac hypertrophy and insufficiency of the left auriculo-ventricular valve—severe attacks of angina pectoris when it seemed that death was near. The objective lesions other than those named were retroversion, engorgement, hardening, eversion of the os uteri, and behind the uterus four small, hard, marble-like tumors; very severe pain, sharp and stinging, in the pelvis mostly; profuse vaginal discharge, not bloody; menorrhagia. Added to this there was loss of appetite so complete that everything in the nature of food was loathed, even milk being repulsive; loss of flesh and strength, being unable to rise erect for ninety days; inability to lie on either side for most of the time; nausea; legs cold and sweaty up to the knees; oft-times great stomach distress, with wind colic; urine high-colored and of a rank smell as if putrid; bowels constipated; a terrible feeling of nervous restlessness, causing her to move her feet rapidly up and down in the bed; visitors coming and assuring her by their looks and actions that she was about to die. Added to this there was cancer in her family, her father having died of cancer of the stomach and her maternal grandmother of cancer of the breast. She was put on general and local treatment, and it was faithfully carried out in connection with good nursing; but she gradually grew worse, until at the expiration of three months the symptoms were so alarming that the senior writer was obliged to take strong and decisive grounds, and to tell her, "You must eat, or die of cancer of the womb; make up your mind to one or the other." She decided to live and to eat; eating against her appetite, but with her intellect and reason and the advice of her medical attendant. She began with tenderloin steak, broiled and cut up very fine. The most she could take at first was a quantity represented by two teaspoonfuls. These she swallowed by a desperate effort, her stomach rising against it, She was so fed every four hours. Even after she had fed in this manner for weeks she felt she would rather die almost than eat, but battled against appetite by sheer force of will. The only way she could get down the beef was by swallowing one mouthful of lager beer, which was the only article which did not go against the stomach. The quantity of meat was increased gradually and she was fed two months against the appetite. The nausea, however, left in about three or four weeks, and at this time she was able to move some, and was placed in a Cutter invalid chair part of the day. After two months of feeding she was taken carefully to the seashore, and there she began to get an appetite, but it took one year before she could walk 500 feet. This case did not fear death, but the form. The results obtained by food are in her case:

1. Heart normal in size.
2. Valvular insufficiency hardly perceivable.
3. Angina pectoris gone.
4. Uterine disease relieved; tumors disappeared, uterus mobile, discharges normal.
5. Urine clear as champagne, 1015–1020 specific gravity; no odor, no deposit on cooling.
6. Restoration to active duties as housekeeper and mother of the family.

No medicine was given after the food treatment, save Hoffmann's anodyne when she had palpitation of the heart and suffocation of breath.

When we state that this case is here to-day, we think our hearers will admit that we have a living argument that we cannot ignore, as to the curability of chronically diseased tissues.

As the time is short we will give no more histories, and proceed to the closing section of this contribution, to wit:

STATEMENT OF PRINCIPLES OF THERAPEUTICS.

1. All cases of serious chronic disease which come under our care are commonly placed on a rigid diet of beef taken from the top of the round, freed either by hand or by the use of the American or Enterprise choppers from all fat and connective tissue. The resultant is the pure lean muscular fibre, which is moulded by the use of knife and fork and broiled, served to the patient on a hot water plate and seasoned with pepper, butter and salt. In some cases, especially of fatty degeneration, butter not allowed. Too much care cannot be given in the selection of the beef and in its preparation, and we refer you to the No. 2 in bibliography appended for further directions. Besides the beef, clear tea and coffee are allowed. As relishes, Worcestershire sauce, lemon and celery can be taken.

Beef is selected as a prime feeder, as it has been proved by long experience and observation to be the easiest digested, the soonest digested, and when digested, an aliment which nourishes all the organs and tissues, as it contains all of the chemical elements of the body.

In some cases, as has been noted, even beef freed from the connective fibrous tissue could not be used, and recourse was had to beef extracts or beef tea. At present we prefer Johnston's beef extract, but gladly note that other preparations are being pushed to the point of the "best." The great fault of many of the "extracts" now made is the presence of the glue or fibrous tissues, which ferment.

2. All starches and sugars are excluded from the rigid diet, as they contain only carbon, hydrogen and oxygen, are hard of digestion, and ferment into carbonic acid gas, alcohol and water, and if time is given into vinegar. It is our experience and that of others that these fermentative changes are highly damaging to the body tissues and have a great deal to do with the causation of chronically diseased organs. But this is not a paper on etiology. Those that wish for more information may get it by studying the articles as enumerated in the bibliography appended.

3. As the patient improves other foods may be brought gradually into the diet. Perhaps the first principle of dietetics is: the fewer articles of food eaten, the better. Nerve force in digestion is thereby saved. In these days of hard work and too fast living, the busy man can do well if he eats but one meat and one vegetable at a meal. If he has plenty of time to use in idleness that is another matter; then he may live to eat and vegetate while doing so.

4. Attention must be paid to that great gland, *the skin*, by giving the whole body daily a sponge bath of ammonia and water, and once a week a soap and water bath.

5. Passive exercise by rubbing and massage must be daily taken. A great amount of force can be placed in a sick person by the rubbing of him or her by a strong, composed, healthy man or woman. The well person may place one hand on the forehead and the other on the ankle or thigh of the sick one. When the patient is improving, he may receive strength by riding on a barebacked horse. Still later on active exercise must be taken, as walking.

Riding in an easy carriage must also be used as a means of passive exercise.

6. The patient's underclothing should be changed night and morning, and care must be taken by the physician to see that the patient is clad warmly enough. Some people do not know what is the proper amount of clothes to wear.

7. *The morale of the patient must be attended to.* We are often asked, "How do you make your patients eat beef? I cannot make mine." The reply is simply, "We make them." Those that come to us are usually sick enough to care to do most anything to get well. Indeed, they have been discouraged by the advice of friends and others that they could not be cured. Giving such a one the history of those that have been cured, even more diseased than himself, and telling him that he is sick with a disease that has been commonly called incurable, that it is curable, and that if he will join hands with us and work together for the desired end, then if the case consents, good can be accomplished. It is never right to say that you are going to surely cure any patient; we are finite; death is certain. Instead let him know of his desperate condition *and* what his chances are. A case of chronic disease should go on treatment for from six months to two years. He should pay by the month and in advance. This ensures better work on the part of the patient, as he wants his money's worth.

Morphological examinations of blood, sputum, fæces and urine, combined with the chemical tests, must be made three or four times a week. The urine must be brought to flowing at a specific gravity of 1014–1020, free from odor, bile or deposits on cooling.

If the patient deviates from his diet, or overworks, or worries, or plays too hard, the results will be seen in the urine. The fæces will indicate to the practitioner whether the food is well digested or not, and whether the patient is living to the plans or not. If the sick one becomes depressed, then is the time for the physician to carry him over the slough of despond.

8. *Medicines so-called.* With medicines alone, and the patient eating recklessly and living imprudently, no case of chronic disease may be expected to be cured. With no medicine, and with

careful attention to the diet and mode of life, chronic disease can be cured. But combining the greatest and best knowledge of foods, drugs and modes of life with a thorough information of the human body in health and disease, so that one can tell whether the case is improving or not—we say, combine these things with good hard common sense, go at the case with all the force and energy you have to cure, and we will predict that you will be agreeably disappointed by restoring a larger percentage to health than has been your ordinary practice.

When the heart is weak and beating fast, do not give antipyrin or caffein to depress it, but build up the system and tone the heart's action with salicin, strychnine, strophanthin or digitalin; salicin may be taken *ad libitum*. A non-sugary pepsin and pancreatin preparation is usually indicated.

A combination of the non-poisonous fluid extracts may be well used. Biniodide of mercury $\frac{1}{16}$ gr. may be given without fear of salivation.

The English iodide of potash for gravel of the lungs, blood and kidneys, in small doses, is well prescribed.

Give no medicines that effervesce or have sugar in them. If you think this is *idle talk*, after getting a patient into good running order, with every gland doing its work easily and well, and nature has been allowed a chance to lay down healthy tissues in the place of the unhealthy, give that patient a little sugar in his tea or coffee, or prescribe Fellows' syrup of hypophosphites, or let him drink of some of the effervescing mixtures, and you will find as we have found, that your case will be upset and good work undone.

Finally, as a cheap and easily obtained medicine, the taking of which forms no bad habits and which is at times more valuable than all drugs put together, we recommend the drinking of one pint of hot water at a temperature of from 100° to 150°, one hour before meals and on retiring. Such drinking dissolves concretions, washes out the stomach, liver, kidneys and bladder, and will lubricate the rusty, creaking machine.

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A PENAL RULE OF OUR COMMON SCHOOLS, AND SOME OF ITS EFFECTS.

Read in the Section of Diseases of Children at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

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"Deliver me from the oppression of man."—*Ps. 119-134.*

"'Tis granted, and no plainer truth appears,
Our most important are our earliest years:
The mind, impressible and soft, with ease
Imbibes and copies what she hears and sees,
And through life's labyrinth holds fast the clue
That education gives her, false or true."

—*Cowper.*

Oppression in any form, at any age of human life, and under all circumstances, is revolting to a true American; but when it tends to lower the morals and compromise the health, then it partakes of tyranny, and this forces open rebellion. Oppression begets oppressors, and freedom makes freemen. Rules and laws are necessary to govern and control the unruly, but even when applied to the worst criminals tyranny is revolting to the finer feelings of mankind.

The last two years has brought under my personal observation the practical effects of a *penal rule* that has been, and is, in force in our *common schools*, the tendency of which is to lower the morals, encourage filthy habits and, sooner or later, compromise the health, as well as to endanger the lives of the scholars.

As I desire to be charitable to all mankind, I impute the existence and enforcement of said rule to ignorance, and not to wickedness of the teacher's heart. But this does not lessen the objections or dangers, or free the teachers from a just criticism. The best methods of lighting, heating, ventilating, with probably everything else relating to the hygiene of our common schools, have been discussed by the philanthropists of our country from its birth to the present. Town, city, county, State and national educational societies have probably weighed every phase of the subject as to the best method of teaching and governing the schools of our country.

The above being admitted, it may appear to the superficial thinker in and out of the teaching clan that I am stepping upon slippery ground, or attempting more than duty demands. Of one thing rest assured, I will not deal in supparasitation, as the subject is of too serious a nature to those who are defenseless, as against those who should know better. Four cases have come directly under my observation the past winter; two of them resulted in filthy and wet clothing; the other two were not so fortunate as to stop at this point—in fact the symptoms in one of the latter were of a serious character. In getting the history of the two last I found that our school teachers had the following *penal rule*, viz: "All

children going out in time of the school session were kept in one-third of the recess." This would deduct five minutes from the fifteen, the latter being the full time for recess. It is certainly well known to all those that came up through childhood that a penalty like this, when applied to small children in particular, is, to state it mildly, wrong. They want their play-time with their fellows, and that they may obtain it, will suffer greatly.

Man, to have his fancied pleasures of an ephemeral character that will bring him pain on the morrow, will even risk the loss of eternal happiness, better stated by the poet:

> "It is sad
> To think how few our pleasures really are,
> And for the which we risk eternal good."

It is a common saying that cleanliness is next to godliness. Admit this as a truth, then children with their clothing soiled by their urine or fæces are a long distance from godliness. Youth is the time to get fixed habits; as some philosopher has stated it, "As the twig is bent, so the tree inclines." It goes as a saying that habit is second nature, as is demonstrated in the filthy habits of those who use tobacco. When they first commenced the use of the weed it sickened, vomited and made the person dizzy; but by persisting against its warnings the system tolerates, and finally appears to demand it, so that it gives mental and imaginary physical pain to do without it; as in this habit, so in others. The calls or promptings of nature should be responded to immediately; these are facts that cannot be controverted by any intelligent mind, the force of which to the educated physician is so self-evident that the above penal rule in our common schools strikes him as inhuman.

In clinically studying the causes of constipation and costiveness I find two leading factors: 1. Constipation is more often found in the female. 2. That it dates from youth. Here again we have another example that we are creatures of habit, as I have had my patients to frankly inform me that, when young, they were prevented from attending to the warnings of nature by reason of company or other surrounding circumstance, until the habit was formed; here false modesty was to blame. Only a few days ago I was consulted by a lady who informed me that she rarely had a passage from her bowels oftener than once a week, and she was then suffering from fæcal toxæmia, *e. g.*, headache, dizziness, bad taste, stupor, drowsiness, low spirits, etc. In causation of her constipation it was the same old tale, "false modesty when a youth." This is only one of the many that could be given. Medical men know that urine retained any considerable length of time in the bladder becomes alkaline. This is abnormal, although it is frequently alkaline shortly after meals, which may account for the desire to urinate frequently after eating, or the converse. Unhealthy urine in the bladder first acts as a local irritant upon the coats; continuing to accumulate, it distends the bladder to the extent that the muscular contractility is destroyed, the further flow from the ureters and kidneys prevented, and, by the pressure of the over-distended bladder, contiguous organs interfered with in action and compromised by displacement, *e. g.*, cystitis first, and inflammation of continuous and contiguous parts, uræmic toxæmia, calculi, saculation of the walls of the bladder, etc. The child, to have its play-time, will resist the calls of nature to the uttermost. In time this will weaken and then paralyze the bladder and bowels, and the habit, once formed, is very difficult to overcome. This will in a measure account for many of our cases of headache and general bad feeling, malaise, or, popularly called, blues, that so often afflict some persons.

In some temperaments it will prove a greater source of annoyance than in others, as the bilious temperament would suffer more from the interference with the bowels, while the nervous temperament would be more often affected by interference with the action of the bladder; both would make pessimists and melancholics, particularly the first-named.

The human system will not tolerate any interference with her laws without rebelling, and the retention of excrementitial substances for any unreasonable length of time first works a local and then a general injury, as they not only become foreign substances, but general poisons, and the parts and system become correspondingly injured The child resists the calls of nature from day to day as long as possible, by reason of the penalty, and he finally accomplishes the feat, or the discharges pass off into his clothing; the latter is likely to get the child a scolding, if not a whipping, when he returns home. This is altogether wrong; if any one deserves the punishment, it is certainly the teacher. The home punishment adds fuel to the flame by forcing the child to bring more will-power to bear in resisting nature's demands, and in succeeding he soils the inside. Again habit becomes second nature. What to the child was at first filth, at which his higher susceptibilities or moral nature revolted, becomes in time a matter of course, or don't care. If cleanliness of person is part of the moral code, then the person's morals are lowered. Moral is derived from the Latin *moralis*, from *mos*, *moris*, manner, custom, habit, way of life, conduct.

I do not deny the teachers the right—in fact I believe it to be their duty—to adopt rules to govern their schools, but I do deny them the right to adopt any rule that leads to filthy habits, or that is likely to entail disease, ever so remotely, upon their scholars. It has been my province to meet with many children who were afflicted with

an irresistible desire to urinate every little while, the irritant residing within the bladder, probably acrid urine, or without the bladder by reflex or sympathetic action from the fæces or worms, etc. To compel such children to obey such a rule is brutal. The rule itself goes for naught; it is the penalty that does the mischief, as it is this that causes the child to resist nature's calls until the damage has been accomplished. To rob the little one of five minutes of his play-time is a calamity to him that will cause him to endure considerable physical suffering. One of our learned Supreme Judges of the United States Supreme Court declared, a short time ago, that we had "too many laws." If this is true of our country, it is also undoubtedly true when applied to our common schools, one that I am certain of that should never have had more than a passing thought, like the flitting of a butterfly through the air, to condemn it. If tyranny makes tyrants, this penal rule adds other factors, such as filthy bodies without and within, also sowing the seeds of disease sooner or later. Discipline in the government of our schools is one thing, and inhumanity is another.

The overfilling of the bladder or excessive distention of the bowels will, in the female, tend to develop versions, prolapses and obliquities of the uterus, vesicoceles and rectoceles, and in the male and female alike, hæmorrhoids, etc. A simple allusion, to the educated physician, to the probabilities and possibilities of the derangements that might result directly and indirectly, is all that is necessary; therefore I shall not name all.

A. A., a boy aged 8 years, returned from school suffering with pain in the region of his bladder and lower bowel, and informed his mother that the teacher would not permit him to go out to the water-closet, although he had asked it. I was summoned to the case at once, and upon carefully interrogating the little fellow he reiterated his statements as made to his mother, with this additional declaration, that the teacher finally told him, after repeatedly asking her for permission to go out and informing her why he wanted to, that he might go, but that he would lose recess and would have to stay in. To him five minutes meant the entire time and he resisted nature's call until recess was given; then he went home, suffering as stated. His parents were very angry, and they could hardly be induced to send their child again to school, even after his recovery.

Laura P., aged about 10 years, large for her age and fleshy. She reported that she requested the teacher, immediately after the morning session (9 A. M.) opened, to let her go to the water-closet, but was refused. Shortly after a severe pain attacked her in the region of her bladder, that forced her to cry. She reported to me and to her parents that she repeatedly asked to go out, but was denied, and was forced to remain in until noon. Her sufferings were so great that I was summoned immediately upon her return home. I found her complaining of great pain in and over the region of the bladder, crying and very nervous. She informed me that she had not passed any urine since early morning, and was not certain that she had that day. Over the region of the bladder she was remarkably tender, pulse 120, small, sharp and hard. Her countenance gave evidence of great suffering. She was quite nervous and could not tolerate the least pressure over the lower part of her abdomen. This case was confined to bed several days, but finally appeared to make a full and complete recovery.

The following case occurred to Dr. H. R. Guthrie, and he kindly furnished me the following synopsis: L. F., aged 8 years. Nervous temperament, which was severely excited from not being allowed, by the rules of the school, to go to the water-closet to answer the calls of nature; had an irritable bladder. When called to see her, found her threatened with spasms. Her nervous system was disturbed for a number of days, until, in fact, the bladder regained its accustomed tone. The same condition has shown itself two or three times, but less severely.

Prof. J. A. Larrabee, of Louisville, Ky., says in one of his articles[1] on diseases of the schoolroom: "One-third of the lives of the American people is passed in the schools, and this third is the time when the physical system is peculiarly disposed to contract disease." This being granted, then the preventive and preservative laws of health should not only be studied by the teacher and scholar alike (age and capacity considered), but should be daily practiced. Where the child is too young to understand the force of language, apply the Kindergarten method, so as to simplify and practically apply the object lessons. No rule should ever be adopted that will have the least tendency to impair the physical or moral health of the child, remembering that healthy adults presupposes healthy children. The school-house and everything pertaining to it, within, without and around and about it, should be as inviting to the mind and as salubrious to the body as possible, that health of the body and mind shall be improved, keeping the body at all times and under all circumstances in advance of the mind; and I fully agree with Prof. Larrabee that medical inspectors should be appointed and have entire control of our public schools in everything that relates to the health of the scholars.

The argument adduced in favor of this *penal* rule is, that without this penalty small children will make the calls of nature a pretext to run out-of-doors to play, and the penalty, in a great measure, prevents this.

[1] Boston Herald.

This is undoubtedly a very lame argument to bring forward in favor of such an inhuman rule. Better let them run out and play and work off some of the surplus steam, exercise their muscles and get fresh air; they no doubt need it; the system calls for it, and should be allowed to have it. After having it they will return to the schoolroom refreshed, and my word for it, they will make better adults, physically and mentally. Rigid discipline and the best method of cramming the child with the *crudities* of *book-knowledge* is placed paramount to everything else—the body not given more than a passing thought with some of our teachers. The Roman mother first educated her child how to develop the body, making the mind of secondary importance; while we of our day force the mind and let the body take care of itself. Many of our teachers pander to the foolish vanity of the parents by crowding and cramming the mind, to enable the parents to boast of the wonderful precocity of their children, that they have the smartest children in their classes, and, if possible, in the school, as cases of this kind have come under my observation. When these wise children are fully weighed, two things are found to exist: an impaired body and the knowledge of the monkey and parrot, that will serve and prove of little value in the race of life or bread-making. They are without individuality, originality or true mental capacity; to my finite mind this is not education. Did you ever know of any one so crowded and crammed with the crudities of our school-books who ever made any great mark in the world's history, if they lived long enough to have a fair and full trial? They more often die prematurely, as they have sapped and drained the vital vigor that they possessed when they commenced to attend school, growth of body and mental labor preventing any surplus from being stored up for future use. It is about time that medical men should cry out with a loud voice against this and every other evil that endangers the purity of the body, as well as its health. God, the family, society and the State demand it, as you cannot have good, sound and active minds in other than good, sound bodies.

The following excerpts were clipped from the *Daily Globe-Democrat*, St. Louis, Mo., and as they are germane to the subject under discussion I beg permission to present and read them in connection with and as part of this paper:

"WILLIE BERMEL'S DEATH.—PECULIAR AND PATHETIC FACTS OF IMPORTANCE TO SCHOOL TEACHERS.—The death of Willie J. Bermel, aged 6 years and 6 months, by cerebral meningitis, Sunday evening at the home of his parents, 824 Soulard street, according to the general circumstances attending the case, is attended with a great deal of interest to parents having children in the public schools.

"The story, as told by the parents, Mr. and Mrs. John Bermel, and their neighbors, is pathetic, though startling in a degree. They say: 'Willie was sent to room No. 17 of the Carroll school, Tenth and Carroll streets. He was in the best of health, possibly excepting an ailment quite incident to childhood, and which necessitated his leaving the schoolroom more frequently than were he not so afflicted. On a few occasions, however, the teacher refused him leave. In consequence he was a victim of physiological necessities. As he had some distance to walk home and the weather was cold, a spell of sickness resulted. That was four weeks since. Dr. John E. Faber was called in. Willie recovered shortly. The doctor gave emphatic orders that under no circumstances should Willie be retained in school when he requested a few minutes' absence. Word was transmitted to the teacher in accordance, but a number of times he was detained. Last Wednesday, when it was cold, he returned with his clothes frozen. He was chilled through. We warmed him and put on dry clothing. Then he grew sick and was tucked in bed. He fell into a state of semi-consciousness in a few hours. His sufferings grew fearful. He would almost continually raise his little hand, and snapping his fingers, schoolboy fashion, would plead so hard, 'O, I must go out—I can't help it—please let me go.' This plea, repeated again and again, was the sole burden of his mind; but Sunday morning he grew weaker and his pleading fainter and fainter, until he sank into death with his lips forming with his last breath the faint request, 'let me go out.'"

"Dr. Faber was seen by the reporter and said: 'I am not quite certain whether it is a case of cerebral meningitis or cerebro-spinal meningitis, but think it was the former. Whichever it was, it was primarily induced by congestion, due to undue retention by delicate organs, as these cases always are. When I went to attend the boy last week I found him suffering from congestive symptoms. He was not then out of his mind, but he soon fell into a comatose condition. I saw that there were febrile traces, but gave no quinine, as there was no use trying to do other than keep him quiet. I had attended him a few weeks previous. Then he was suffering from congestive symptoms and I treated him for cerebral congestion, giving him a dose of calomel. The parents told me of the trouble at school, and I gave imperative instructions that under no consideration should he be refused perfect liberty. Whether they did refuse, I do not know more than what the parents told me. I can not say positively that confining him in school unduly was the cause of his death. I would hesitate to say if I did, because I would be loath to single out any one teacher to be publicly attacked. But one thing I will say is that I have a great many simi-

lar cases produced by that error that is allowed to be practiced in public schools. All these cases you hear of of death by cerebral troubles among children are due to the practice of trying to discipline a child's nature beyond reason. The great trouble is that the majority of our teachers are young women, who are determined to blindly preserve discipline. They neither use judgment, nor could they determine. It is a great argument against employing the feminine sex in that capacity. The practice is brutal, but it is general throughout the city. Discipline is well, but discipline had better have been thrown overboard altogether than that even one human life should have been lost. Death in this case, it is possible, may have resulted from something else—high feeding incident to Christmas. I should not care to absolutely attribute it to the most probable cause.'

"The neighbors of the afflicted family corroborate their statements in full, and complain loudly that their own children are compelled to suffer similarly. On the morning when it is said Willie contracted his fatal cold they state that recess had been abolished, and still the child was refused egress.

"Dr. Faber hesitated somewhat in granting a death certificate, but was counseled by a colleague that it would be impossible to arrive at the cause of death, even by autopsy, and the permit was granted. An effort was made to see the teacher concerned last night, but was futile, owing to the lateness of the hour."

Willie Bermel evidently died from *uræmic poisoning*, the result of this same penal rule. Dr. Faber is trying to carry water on both shoulders. His intention is to screen the teacher, and in doing so he places himself in an unenviable position with those who fully understand all the facts.

"PUBLIC SCHOOL DISCIPLINE.—A MOTHER AND EX-TEACHER SAYS IT IS BRUTAL AND SUGGESTS A REMEDY.—The pathetic circumstances attending the death of little Willie Bermel recalls some experiences in my own life that may not be uninteresting, but I would first make the observation, founded upon my own experiences as a mother and an earnest student of child nature, that the present system of discipline in the public schools is not only unreasonable, but inhuman. There are many teachers in the public schools who have no right to be there; they 'despise children.' I have heard them say it. They have no sympathy for them and no understanding of their dispositions and natures. I maintain that love is the only disciplinarian, and a teacher who can not govern her pupils through its influence should have nothing to do with children. The absurdity of trying to control several hundred children of varying dispositions and temperaments by one iron method is too palpable for dispute.

"Several years ago I taught a boys' class in a male academy. The principal was a kind man, and earnestly strove to win the affections of his pupils, but he said, 'Now, I'm afraid you will find these boys refractory; my former lady teachers complained of them, and they were compelled to use the strictest discipline. One especially—mentioning his name—has given a great deal of trouble, and is perfectly irrepressible.' 'I will undertake them,' I replied, 'if you will kindly allow me to carry out my own ideas of discipline'—to which he assented.

"After the first day I had no trouble. I made companions, friends of my boys. I entered into their little pleasures and pursuits with interest, for I loved them and was proud of them, and I never had cause to regret my undertaking. My 'irrepressible' was a bright, intelligent boy of 12 years, nervous, restless, and with a keen inquiring mind. My prescription for him was simply, 'Charlie, I see that you want an escape valve; now go out in the yard and walk up and down briskly as many times as you are years old; that will be twelve; then come in, and I think you will be able to study.' My prescription never failed; he needed some outlet for his overflowing vital forces, and the walk furnished it. He was the brightest, dearest boy in my class, fun-loving, as all boys are and ought to be, but loving, manly and true, and he never gave me a moment's vexation. A few years later, having left the academy, I tried to get a situation to teach in the public schools, because it was the work I loved and wanted to do, but failed because I had been educated in a Baltimore seminary, from which I graduated with honor, and because I had not 'gone through' the Normal School in St. Louis. Red tape proscribed me, and the field I longed to enter was reserved for a young, inexperienced girl, who felt 'children a bore,' and only taught for the money. Over her scholastic capacity I draw the veil of charity. It made no difference; she had friends with 'influence' on the School Board, and the way for her was open. I would here add that if I were offered now a situation to teach in the public schools I should decline it under the present system of tyrannous discipline, which I consider an outrage upon the rights of helpless children and subversive of the very ends sought to be attained. I went through the same exasperating ordeal when my own little ones went to school, and I believe that half the weaknesses and ailments of children are due to that restriction. I shall have all the public school teachers about my ears for writing this, to say nothing of the indignation of the august and sacred 'board,' but I don't care; it is the truth, as many mothers can testify. When women are chosen for teachers who understand and love children, who have kindly natures and affectionate hearts, then the high and mighty potentates

who inaugurated and maintain the present system of discipline will find fewer thorns in their tutelary path, and give more satisfaction to the taxpaying parents who support the educational institutions. A LOVER OF CHILDREN."

This lady, signed "A Lover of Children," makes some happy hits. In the matter of employing teachers, too often teachers are employed who are physical wrecks, this being done from a charitable standpoint. I have known teachers in our common schools who were expectorating large quantities of tubercle every day—spit it upon the floor to dry, of course, and, when dry, to be driven into the air of the schoolroom by every movement of the scholars and every puff of the air. Teachers should be sound in body and mind, and should be employed because they love the work and love children.

COUGH IN ITS RELATIONS TO MORBID STATES OF THE NASAL PASSAGES.

Read in the Section of Laryngology and Otology, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY J. E. SCHADLE, M.D.,
OF ST. PAUL, MINN.

The syptomatology of morbid processes seldom presents a more perplexing subject for analysis as to its primary cause than that of cough. A chronic cough which will not yield to ordinary methods of treatment and whose ultimate significance is sometimes difficult to understand, is calculated as much as any other single condition to establish in the mind of the sufferer extreme anxiety. This is not strange when it is remembered that we have in it one of the premonitory symptoms of consumption.

It is only from a comprehensive knowledge of all its pathological connections that reliable differentiations can be made in consideration of the primary sources of cough. The peculiar phenomenal sounds characterizing some varieties of cough may aid materially in determining the nature and location of the disease on which its origin depends; but a correct diagnosis from such a basis of investigation cannot always be relied upon; a more extensive research is required.

A series of observations, strengthened by those of other laryngologists, confirms me in the conviction that not enough attention is given to interrogations of the nasal passages when cases of cough present themselves. An important interest belongs to this subject, especially in its practical relations to morbid states of the nasal cavities.

Teachers of rational medicine seem to lose sight of the essential office of the nose as it presides over the act of respiration and that an abnormality of its structures may either directly or sympathetically interrupt the physiological processes of the organs which come under its domain. Experience bears me out in the statement that in conditions where specific organic changes of the lungs are not manifest, a cough spasmodic in character, accompanied or not by temporary alterations of the voice or of the function of respiration, is frequently, if not invariably, of nasal origin. To practically demonstrate the importance of this statement, I will state the histories of several cases which certainly possess the average amount of interest.

Case 1.—Cough due to posterior hypertrophies of the inferior turbinated bones.

F, a young woman, eighteen years of age, came to me ten months ago, for advice concerning a distressing cough which had been troubling her for more than nine years. She stated that during this time all sorts of cough mixtures had been prescribed by different physicians but without affording her permanent relief. The cough was paroxysmal and varied but little during any part of the year. If anything exerted an influence, she thought it was a moist condition of the atmosphere as at such times the seizures were harder and more prolonged. Unattended by expectorations the cough was dry and irritative and came on most intensely at the hours of retiring and rising, particularly the former. Sometimes after assuming the recumbent posture it became more severe, the attacks usually lasting an hour or more. The voice, especially in the evenings, was hoarse.

As to the subjective features of her complaint, she directed my attention to the laryngo-bronchial region where the sensation giving rise to the cough was located. It was a feeling of pronounced irritation resembling very much that produced by the presence of a foreign body requiring expulsion from these parts. In connection with this expression of the disorder, a stopped-up feeling of the nasal chambers was complained of as producing considerable discomfort.

Noticeable among other symptoms was a choreaform disturbance of some of the muscles of the face, which became more pronounced in their convulsive movements under the influence of fear, such as is occasionally created by the presence of surgical instruments used in an examination. The neurotic diathesis evidently was inherited from the father who was himself afflicted with nervous irritability, shown by his uncommon susceptibility to influences peculiar to such a condition. An undue amount of hyperæsthesia was present in the parts as was indicated by sneezing and coughing when pressure was exerted by the operating instrument.

The entire intra-nasal mucous lining was catarrhally affected. It was intensely red and threw off great quantities of serous fluid, thus occasioning a troublesome symptom. The mucous membrane was also very sensitive to the action of local causes of irritation. The use of a probe

over its surface soon was followed by so-called erectile swellings of the parts touched.

Posterior inspection of the nasal fossæ revealed neoplastic changes of the inferior turbinated bones. The redundant tissue which occupied about one-third of the length of each bone consisted of soft, irregularly shaped growths, the size of an ordinary mulberry. The lumen of the lower meatus was considerably lessened by the condition. The larynx presented no abnormal changes apart from a deep redness and marked infiltration of the subglottic mucous membrane, which condition was limited to this region. Applications of a solution of chloride of zinc to the affected subglottic tissues and a correction of the deformed septum with a Bosworth saw soon yielded entire relief.

The sensitive nervous organization of the patient and the marked morbid changes discovered in the nasal chambers, furnished a clew to the cause of the cough.

The posterior hypertrophies were removed with a snare and the rhinal inflammation reduced by the use simply of antiseptic sprays. To overcome the nervous excitability, the remedies —arsenic, zinc, quinine and strychnine were employed. Under the above management the cough soon disappeared and has remained so ever since.

Case 2.—Cough due to a deformity of the septum narium.

During the autumn of 1888, a man, forty-three years of age, was sent to me for examination on account of a cough which, he said, fifteen years before had come on without an apparent reason, and which year by year had gradually grown worse. He gave no evidences of tubercular disease either by his own or that of his family history. Generally he was in the enjoyment of good health and regularly followed his vocation as an accountant for a railroad corporation. The cough was spasmodic and often quite violent. Fatigue and active physical exercise had a tendency to bring on the attacks. Unlike the case just cited he was never troubled with the cough after having retired for the night. Usually in the mornings whilst in the act of dressing himself he had a seizure. One of the initial symptoms of a paroxysm was the sensation of a worm crawling through the tissues of the larynx. He also complained of occlusion of the left nostril, which on examination was found to contain a tumor of the septum narium consisting of cartilage and bone. The right nasal chamber, the post-nasal space and the pharynx did not seem to suffer from the obstructed state of the left side of the nose as is commonly the case under such circumstances. Aside from this, the family history contained nothing of special importance.

An examination of the larynx showed thickening of the mucous membrane of the interarytenoid space. The aro and naso-pharyngeal mucous membrane was but slightly altered in its normal appearances. A few chronically enlarged follicles surrounded here and there by hyperæmic patches were observable.

Case 3.—Cough due to chronic nasal catarrh occurring in a subject predisposed to consumption. About one year ago a woman, 25 years of age, medium size, light complexion, came to me through the advice of her medical attendant, complaining of a harassing cough which began six months previously. The cough was accompanied by muco-purulent expectorations. Decided anæmia and loss of flesh were showing themselves; the appetite was poor, the bowels irregular and the menstrual function deranged. In connection with the symptoms of cough she also complained of an excessive chronic discharge from the nasal passages, which had been troubling her for a few months prior to the onset of the cough. The cause of the rhinal disorder she attributed to a neglected cold in the head. The family history was very discouraging, as she stated that one parent and several sisters had died from tubercular disease. A physical examination of the chest gave no evidence of a co-existing lung disease. By the use of the laryngoscope a catarrhal change of the larynx, such as is sometimes initiative of tubercular laryngitis, was discovered. The mucous membrane was hyperæmic; the arytenoid cartilages were swollen and intensely red; the vocal bands sympathized but little with the morbid process; beyond them in the trachea no change of structure was perceptible; the voice was impaired in both quality and strength; some pain was experienced on swallowing water or food. The rhinoscope brought to light a well-seated chronic rhinal inflammation involving the whole membrane covering the intra-nasal fossæ. The mucous membrane was purple-red and swollen, and was actively engaged in throwing off the offensive secretions of which mention has been made. Whilst a quantity of purulent material was blown from the nose, much of it found its way into the throat from behind the palate. It at first seemed as though the patient was suffering from laryngeal phthisis, an opinion entertained by her former physician; but as there were no signs indicating pulmonary trouble, it appeared clear that the cough and laryngitis were secondary elements in the case; they were a consequence of the pre-existing catarrhal disease of the nasal passages.

The treatment pursued with a view to eradicate the cough consisted in an attempt to remove the catarrhal affection of the nose and throat, and to tone up the general system of the patient. The former end was accomplished by the local applications of antiseptic and alterative agents, the latter by the administration of the syrup of the iodide of iron in full doses. As soon as an impression both locally and constitutionally was made the cough ceased.

Repeated observations on the peculiar behavior of nasal disorders add testimony to the fact that those diseases of the nose which predispose to the establishment of reflex disturbances are the morbid processes which give rise to cough when it is thus pathologically related.

A study of reflex neuroses during recent years has developed a fertile field for the investigation of not a few phenomenal symptoms of disease whose etiology hitherto remained obscure. It is nowadays a conclusive observation that with a knowledge of nasal reflexes in their pathological aspects a way has been opened for a better understanding of the cause and treatment of a certain form of so-called nervous headache. An inquiry into the state of the nose not infrequently reveals a contributory factor to the production of spasmodic asthma, whose cure becomes expedient by a removal of the nasal difficulty.

The extraordinary reflex symptoms of hay fever which give character to the affection, it is now well known, have their focus of origin seated in a morbid state of the intra-nasal cavities. Local choreaform movements of the muscles of the soft palate, of the face, or of the larynx, are sometimes traceable to intra-nasal irritation.

The "pathological nasal reflexes" described by Dr. John N. Mackenzie are thus seen to have a special importance attached to themselves, which I am sure should merit the attention of all intelligent physicians. To this category belongs a spasmodic cough whose cause is located in a morbid state of the nasal passages, and whose existence remains permanent until the intra-nasal lesion is got rid of.

Through the sympathetic nervous influence exerted by the presence of diseases of the cavities of the nose more or less irritation of the peripheral nervous filaments of the laryngo-bronchial mucous membrane takes place, whereby cough is induced.

"Recurrent laryngitis" attended by cough Dr. Ingalls attributes to a coexisting nasal catarrh or obstruction, and maintains that a cure is performed by giving proper attention to the treatment of the nasal passages.

In the classical writings of Dr. John N. Mackenzie we find it said that "various neuralgic conditions of the branches of the fifth and other nerves —cough, asthma, vertigo, nightmare, diseased states of the eye, ear, larynx and bronchial tubes —have been mitigated or known to disappear with a cure of the nasal affection."

Paresis of the vaso-motor blood-vessels of the nasal mucous membrane, resulting from neglected attacks of acute rhinitis or local irritation from a deformed septum or morbid growth plays unquestionably a conspicuous part in bringing about secondary effects of the larynx or bronchial tubes accompanied with cough and other serious consequences.

Referring to this subject a few years ago, Dr. Bosworth said: "We often regard a laryngitis and bronchitis as the extension of a catarrhal process from the nasal membrane. That such is the case I do not believe. There is no continuity of tissue. That this is the true view is well shown by the fact of our utter failure for many years to treat successfully catarrhal disease in the larynx and trachea by local application, and by our striking success in curing such diseases by removing diseased conditions in the nose, to the exclusion of any local measures whatever directed to the passages below." Further on he says: "Vaso-motor paresis of the blood-vessels of the nose constituting inflammation is liable to be followed by vaso-motor paresis in the larynx, trachea and bronchi."

The treatment of a chronic cough dependent on intra-nasal disease at once becomes apparent. By following the precepts of the quotation from remarks of the President of this Section, "that the laryngologist of the future must be more the rhinologist, and the rhinologist more the surgeon than the physician," a correct method of treatment of this symptom, as it occurs in connection with morbid states of the nasal passages, is usually afforded.

EFFECT OF NATURAL GAS UPON UPPER AIR PASSAGES.

Read in the Section of Laryngology and Otology, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY D. M. RANKIN, A.M., M.D.,
OF ALLEGHENY, PA.

In 1883, when natural gas was first introduced into Pittsburgh as a fuel, loud and many were the complaints that the heat it produced had the effect of making the atmosphere too dry for breathing purposes (not taking into consideration this new and untamed fluid, as to its noxious and combustible qualities) that it irritated the nose and throat.

So great was the complaint at first that a great many persons had it removed from their dwelling houses, but ingenuity often conquers a great many difficulties, and it certainly did in this case. The dryness of the atmosphere produced by the heat of the gas was obviated by kettles filled with water, hung over the fireplaces in which the gas was burning, the water in the kettles would become sufficiently heated to generate steam enough to neutralize the dryness produced by combustion of the natural gas. This dryness of the atmosphere was not an imaginary thing, because even after burning the natural gas in an open grate for a few minutes, the cracking and opening of the glued joints of the furniture of that room could be distinctly heard and seen. Before the plan of moistening the air was introduced, a large amount of the finest and most expensive furniture, such

as pianos, parlor, bedroom and dining room furniture was entirely ruined. This natural gas is a great godsend to the cities and towns that are fortunate enough to be within piping distance of the gas wells. For a long time it burned before it was utilized, but finally our great manufacturers saw it was intended for some good purpose, and began piping it to their mills.

It has superseded coal and is now principally used in all the manufactories, business houses and dwellings. Aside from the comfort natural gas gives at the fireside, aside from the labor it saves in our mills and glass houses, it serves to illuminate our streets, and gives us additional light which no other city in the world possesses. There is no more danger in using it than there is in the illuminating gas that has been used for a century. I have been reliably informed by persons old enough to remember when gas for illuminating purposes was first introduced into Pittsburgh, that it was a long time before people became used to handling it; a great many explosions and loss of life occurred, but at the present time, especially in large cities, would we be willing to dispense with it?

When natural gas was introduced into Pittsburgh there were quite a number of explosions, and some of them very serious, resulting in great loss of life, doubtless caused by the fact that consumers did not know how to manage it as well as they do now. It was like coal oil when first introduced, people had to be educated to its use, and had to pay, oftentimes, very dearly for their education. As it is now managed we very seldom hear of an explosion, except when it is due to carelessness. Having these complaints frequently brought to my attention, I began to interest myself in the matter, and discovered that the occurrence of natural gas is by no means a recent discovery, it is mentioned as occurring among the Ancients, for instance, "the Holy Fires of Baku," also low pressure gas springs have been found in Germany, one of which at the salt works at Gottesgabe, on the Rhine, was utilized for illuminating purposes. In the United States gas wells were known to the earliest settlers, and have been in economic use for heating and illuminating since 1821. In this year the town of Fredonia, N. Y., utilized natural gas for illuminating purposes, and the results were so satisfactory that a second well was drilled in 1858, which furnished the supply for 200 burners.

While drilling for oil in Western Pennsylvania in the year 1859, small quantities of gas were always associated with the oil, and *vice versa*, gas was occasionally struck which contained petroleum. Among the most powerful gas wells struck in the vicinity of Pittsburgh was one at Murraysville, in 1878, at a depth of 400 feet, which was so powerful as to throw out the drilling implements and displace the derrick.

Until 1883 large quantities of this valuable agent was wasted, at this time dates the practical application of natural gas to manufacturing and domestic purposes. It was during this year that the great Westinghouse pipage company was formed to convey the gas from Murraysville wells to Pittsburgh. At present there are 1,200 miles of main pipe communicating with the gas wells, supplying consumers in mills, factories, houses, etc., of Pittsburgh and vicinity, to the extent of 600,000,000 cubic feet daily.

Different chemists, who have analyzed the natural gas, state that it is very variable. It will vary not only in different wells, but it will do so continuously in one and the same well. The following is the mean analysis taken from six different wells, by an eminent Pittsburgh chemist:

Marsh gas CH_4	67 per cent.
Hydrogen H	22 " "
Nitrogen N	3 " "
Ethylic hydride C_2H_6	5 " "
Olefiant gas C_2H_4	1 " "
Carbonib oxide CO_2	06 " "
Carbonus oxide CO	06 " "

By a glance at the above analysis one cannot doubt for a moment how impure and noxious the natural gas would be for breathing purposes. Upon examination of the cases suffering from the effects of breathing natural gas, and the changed condition of the atmosphere produced by its combustion brought to my notice, I discovered the following history: The patients usually complained first of a dryness of the nose and throat, followed by a free discharge of muco-purulent matter from those cavities, after which the dryness would recur, sometimes the irritation would extend to the larynx, and produce considerable huskiness of the voice. Upon examination of the nares, pharynx, and larynx with reflected light, a considerable amount of congestion would be observed, with extreme sensibility, which were promptly relieved by applications of four per cent. solution of cocaine, followed by application to the nares and pharynx of vaseline.

I should here state that three months after the first introduction of natural gas for domestic purposes there were no complaints; this can be readily accounted for. At first the plumbers and gas-fitters did not understand how to handle it. In the first place the pipes were made of metal too porous, the joints were not as tight as they should have been, the gas companies appointed inspectors to go to every place where gas was used, and test every pipe conveying natural gas, the result was they discovered that a large percentage of the pipes leaked, contaminating the atmosphere to such an extent as to cause the unpleasant symptoms to the upper air passages. Now we hear no complaints, and those persons who had the gas removed from their dwellings have, since the pipage has been perfected, had it replaced in their residences.

The following conclusions may be arrived at, with our present improved gas-fitting, and the experience our gas-fitters have acquired since its introduction. We may now feel perfectly safe from being asphyxiated by escaping gas, or any deleterious effects resulting from inhaling an atmosphere devoid of sufficient moisture to be conducive to a healthy respiration.

I am aware that a rumor has gone abroad (especially emanating from cities that have not the comforts we enjoy from this wonderful substance supplied us from the bowels of the earth in exhaustless quantities) that the natural gas is not healthy to breathe; it certainly is not, but in Pittsburgh we do not pretend to breathe it. We burn it, and enjoy it to its fullest extent, and expect to do so as long as it lasts.

ALEXANDER'S OPERATION, WITH A NEW METHOD FOR SECURING THE ROUND LIGAMENTS.

Read in the Section of Obstetrics and Diseases of Women, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY A. B. CARPENTER, M.D.,
OF CLEVELAND, O.

It is my purpose, in appearing before the members of this Section, to speak briefly regarding the Alexander operation, with special reference to its application to complete prolapsus.

You are all familiar with the claims of Dr. Alexander, and also with the writings of Mundé and others on the subject; therefore, it would be only waste of time to enter into detail in describing the various steps of the operation; but I will confine myself principally to a few remarks regarding the fastening of the round ligaments.

As a radical cure for this most distressing condition I believe the Alexander operation has no equal because of the simplicity of the work and the comparative, yes, almost absolute freedom from mortality. It is true there have been deaths recorded as resulting directly from the operation; yet this occurred in the early time before the detail was well understood.

The greatest objections raised in the past against this method has been the difficulty in finding the round ligaments. This, however, applied chiefly to the operations for retroversion and retroflexion, where the ligaments were small and very fragile, breaking while being drawn out, and causing the operation to be abandoned as incomplete, and the surgeon to bear the blame of his work being a failure.

In cases of complete prolapsus it is entirely different. The ligaments have become thickened and greatly enlarged; the difficulty in finding them in most cases is entirely removed. The many years of constant dragging upon the ligaments usually resulted in a hypertrophied condition, so that, instead of being small and fragile, we find them of much greater proportions, so that, by first replacing the uterus and then having it held well up by a sound in its cavity, the ligaments can be carefully drawn out with little or no danger of their breaking.

In 1885 I had the pleasure of listening to a paper by Dr. Alexander himself, read before the British Gynecological Society, wherein he described his method of shortening the round ligaments, and I was particularly impressed with what seemed to me to be the insecurity of the fastenings.

If we turn to our anatomy for a moment and consider the structures involved, the dense unyielding fibers of the pillars of the external abdominal ring, at the same time the round, smooth character of the ligaments, composed, as they are, of dense fibrous tissue, thus affording a limited opportunity for the formation of strong adhesions in the wound, it seems to me that a reasonable explanation can be found why many of the patients who have been operated upon have reported themselves in after months as not improved, the anchorage being so slight and frail that the uterus, by continually dragging, tears the ligaments loose and gradually settles down to its old position. This, at least, was the explanation made to myself, and I accordingly determined to try a different method of fixation.

The plan which I now employ is as follows: The uterus being replaced and held high up by an assistant, the incisions are made and the ligaments on either side drawn out until the uterus is found to be well up and forward; a needle armed with silver wire, No. 26, is then passed through the external pillar of the ring, through the round ligament, then through the internal ring; this is then twisted down firmly, cut off and the ends bent over and crushed down, that they may cause no irritation. The slack of the ligaments is then cut off, leaving just sufficient to fill the bottom of the wound. The ligaments are then split to within a short distance of the silver wire and turned partly outward from each other and stitched with fine gut to the lateral walls of the wound, the latter being then closed, a small drainage tube inserted, and the whole covered by an antiseptic dressing. The silver wire is left to become permanently encysted, and thus hold the ligaments firmly in place.

A high posterior plastic operation should then be made on the vagina, and upon the removal of the sutures from the latter operation a Hodge, or perhaps what is better, an Albert Smith pessary with a high bar should be introduced and worn for not less than six months. A case of complete procedentia of years' standing operated on by this method ten months ago is to-day perfectly well, and with the patient in a standing position

the cervix can only be reached by the full length of the index finger.

In conclusion, therefore, I will say that this method of fastening the round ligaments is, in my opinion, superior to any with which I am acquainted, as it affords a firm anchorage and thus prevents the uterus from dragging upon the ligaments, thus drawing them gradually out, defeating entirely the object of the operation.

I am not unmindful that the operation is strongly condemned by men of much greater experience than myself; yet I very much desire to call attention to what appears to me to be a simple, safe and radical cure for one of the most distressing ills which woman is heir to.

166 Euclid avenue.

MEDICAL PROGRESS.

RESECTION OF THE INTESTINE.—CZERNY, of Heidelberg, reports (*Centralblatt für Chirurgie*) a series of twenty-one cases in which he has performed resection of the intestine. Of these eight died. Inasmuch as double resection was performed four times (with two deaths and two recoveries) and in one instance five tubercular fistulæ were closed the results of operation are seen to be improving greatly for these cases must be regarded as unusual. Although the results set forth are better than the general average for these operations the reporter does not doubt that intestinal resection in the hands of a skilful operator will exhibit a similar progress to that made by Spencer Wells in the case of ovariotomy. With improvement in the results obtained the indications for the operation will multiply, and these are more likely to present themselves than are the indications for the removal of the ovary. Although accident plays a great part in statistics based upon few cases still it appears significant to the reporter that whereas up to 1885 he had seven cases with four deaths, since that time he has performed the operation fourteen times with only the same number of fatal cases. Death results generally from collapse, less often from septic peritonitis, which can never be entirely prevented. In only one case was the suturing a failure; in this case there was necrosis of the sutured edges.

In eight cases the operation was performed at the ileo-cæcal regions with four deaths; in two cases at the transverse-colon; in one case at the flexum near the rectum; in five cases the small intestine was the seat of operation, one case being fatal; in four cases there was a double resection with two deaths; in one fatal case there was six lines of sutures.

Union always takes place by first intention. In one case only, where there was a tubercular fistula, did the fistula return. In all the cases a double row of silk sutures was employed, the intestine being dropped in the abdomen. Drainage of the abdominal cavity was nearly always avoided. The double row of sutures when properly applied secures such perfect union of the intestine that the aim to-day is to perfect one's individual technique rather than to seek new methods of operating.

THE INFLUENCE OF CERTAIN MEDICAMENTS UPON ARTIFICIAL DIGESTION.—ARTHUR KATZ has made experiments with a view to determining the influence of certain medicaments upon artificial digestion. For digestive material he employed Schültz's solution of the white of egg and dried white of egg. His digestive fluid consisted of a mixture of 1 liter of water and 2 grams of pepsin, with the addition of from 2 to 2½ per mil. of muriatic acid. The material to be tested was added to the fluid and the whole placed in an incubator to digest. With the necessary control experiments it was shown that muriate of morphine and sulphonal delayed the formation of peptones, the latter, however, only in large quantities, such as 3 grm. in 200 ccm. of the fluid. Atropine, strychnine, tr. nucis vomicæ, chloral hydrate, arseniate of potassium, sulphonal in small quantities, tr. strophanti and creosote were without influence upon the artificial digestion. The formation of peptone was increased by the sulphate of bismuth and the muriate of quinia.

TREATMENT OF PULMONARY TUBERCULOSIS WITH CREOSOTE.—SOMMERBRODT (*Centbl. f. Kl. Med.*) reiterates his claims for the creosote treatment of phthisis introduced by him. He maintains the assertion made in his first publications that the initial stage of the disease can be cured by creosote, while in the later stages the patient can be greatly relieved by the treatment, as has been proved by his own experience and that of many others. A positive explanation of the favorable action of creosote has of course not been given. Guthmann's experiments showed that rather more than 1-4000 part of creosote suffices to prevent the development of tubercle bacilli in blood serum, but to produce the same result in the body would require the presence in the circulation of 1 grm. of creosote, a much larger quantity than could be administered by the stomach. Sommerbrodt suggests the possibility of a cumulative action of the creosote when given in as large doses as possible, such as 1 grm. *per diem* for months at a time. Cornet's experiments on guinea pigs likewise furnish no explanation of the favorable action of creosote; they show its lack of influence in the infection of these animals wish tubercle bacilli, so that according to him the favorable influence of creosote upon phthisis is to be ascribed to its action in improving the

appetite and in diminishing the secretion of the bronchial mucous membrane. Sommerbrodt however has observed such an extremely favorable action upon the bacilli and the morbid processes in the lungs in the human subject that he is not satisfied with Cornet's negative experiments upon guinea pigs. He prescribes the remedy in capsules of 0.05 grm. with balsam of tolu, giving in all as much as 1 grm. per diem.

MICROBES IN FISSURES OF THE ANUS.—M. JORISSENNE (*Le Bulletin Médical*) maintains that the persistence of fissures of the anus is due to the presence of microbes, and that the antiseptic is the only rational treatment; it also possesses the advantage of being essentially analgesic in its action. Sublimate is the most promptly curative agent; its application in the form of an ointment is painless, convenient and efficacious. The application should extend into the rectum as far as 3 cm.

RESECTION OF THE RECTUM.—In a report on the subject of prolapse of the rectum DR. JOSEF BOZDANIK says this trouble is of frequent occurrence particularly in children; in the majority of cases a cure is effected by the suitable treatment of the intestinal catarrh, but in several cases local astringents or caustics must be employed together with properly applied bandages. Many cases however resist medical treatment and after the unsuccessful employment of parenchymatous injections resort must be had to surgical operations. Sabadier excised the prolapsed mucous membrane and stitched the edges of the wound together. Dupuytren carried out Hey's idea which consisted in narrowing the oval opening. Dieffenbach reduced the prolapse and then cut out wedge-shaped pieces from the lower part of the rectum and from the anus and then united the edges of the wound by means of deep sutures; Lange's method was not less radical, and therefore surgeons began to return to the older methods of cauterization and parenchymatous injections. The reporter describes a form of operation practiced by him which differs from that of Mikulicz, Billroth and Nicoladoni only in the mode of introducing the sutures. The result of the operation in that entire portion of the rectum protruding beyond the oval opening is removed and an annular stricture is formed above the sphincter which however does not interfere with defecation. The mortality in the operations of which the reporter is advised was *nil*.—*Weiner Med. Woch.*

VARIATIONS IN THE CAUSTIC ACTION OF CARBOLIC ACID.—M. CHARLES has shown that carbolic acid in solution with glycerine or alcohol is not caustic, whatever be the degree of concentration. Even saturated solutions are readily borne by the skin and mucous surfaces, while the concentrated aqueous solutions are markedly caustic and produce a lively sensation of heat even upon the healthy skin. A small addition of water, however, to an alcoholic or glycerine solution suffices to render it caustic. The fact is readily explained if we admit that an instable combination which is decomposable by water exists between carbolic acid, a body related to the alcohols, and alcohol or glycerine, which latter is also an alcohol. In fact a saturated aqueous solution of carbolic acid produces more heat when mixed with glycerine than when added to a corresponding quantity of water.—*Le Bul. Méd.*

ARTIFICIAL PRODUCTION OF ASTHMA.—ARONSOHN (*Cent. Bl. für Klin. Med.*) reports the case of a clergyman, 33 years of age, who suffered from hoarseness, but had never been troubled with asthma, in whom a fibrous polyp of the right middle turbinated bone was discovered. In consequence of the first attempts at removing the polyp attacks of oppression of the breast and dyspnœa appeared upon the same day and the following night, but disappeared after the completion of the operation. The case, then, was one of asthma artificially produced in one who had never before suffered from this disease.

TREATMENT OF PRURITUS CUTANEOUS UNIVERSALIS.—In the treatment of general cutaneous pruritus a great number of remedies, mostly nervines, have been recommended, with the idea that iodopathic pruritus is purely a neurosis of sensibility. Topical treatment in these cases may properly be set down as useless; likewise the internal administration is not always productive of good results. DR. WERTHEIMBER recommends the use of salicylate of sodium, with which he has achieved surprising results in three cases. He prescribes it in the form of a 3 per cent. solution, the dose being two tablespoonfuls per diem. —*Corres.-Bl. für Schw. Aerzte.*

A SYNTHETICAL CARBOLIC ACID.—The anilin and soda factory in Ludwigshafen has introduced a so-called chemically pure carbolic acid made by synthesis. This product has a melting point of from 41–41° C. It is distinguished from the ordinary carbolic acid derived from tar by the absence of the pungent odor which characterizes the latter, and which is due to impurities present in the tar. Aside from this advantage it has been found by Garré that it is much less irritating to the skin than the ordinary article, and much less apt to produce chaps and eczema. A very convenient form of the new acid has already appeared in the shape of compressed tablets of the pure acid containing 1 and 2.5 grams each.—*Corres.-Bl. für Schw. Aerzte.*

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SATURDAY, MARCH 1, 1890.

MOOT POINTS IN THE DOCTRINE OF PLACENTA PRÆVIA.

We are unable to agree with our esteemed contemporary, *The New York Medical Journal*, in the opinion expressed in the editorial columns of a late issue,[1] that the signs of the times point to a lack of interest in the theory and practice of midwifery, indicative of the "decay of obstetrics." While prepared to admit that current medical writings are constituted in a disproportionate degree by contributions from practitioners blessed with the "abdominal instinct" and endowed with an affection for "pus tubes," still we think that obstetrics receives adequate representation in that which shall abide as the real literature of the day.

From among the numerous topics that have successfully engaged attention during the past year, and that might all be cited as illustrative of the truth of the proposition just formulated, we select placenta prævia, as well on account of recent material advances in doctrinal knowledge, as by reason of the import of the condition itself in practice. Let us note briefly some of the more significant contributions to the moot points in the doctrine of this complication.

KALTENBACH[2] agrees with HOFMEIER as to the pathogenesis of placenta prævia, and ascribes it to the persistence or to the new growth of the villi of the chorion læve and the development of the ovular decidua, which may or may not be conditioned upon antecedent corporeal endometritis. Although this hypothesis is not positively demonstrated, since sufficient preparations from early pregnancy as yet have not been examined, still it is rational and highly suggestive.

EDWARD WARREN SAWYER[3] defends the thesis, "partial rotation of the ovum in early pregnancy a cause of placenta prævia," upon the ground of the frequent occurrence of marginal insertion of the cord. But marginal and velamental insertion can be more plausibly accounted for on Schultze's hypothesis, while the recurrence of placenta prævia in the same individual—a well established fact[4]—negatives any general application of Sawyer's notion.

In diagnosis it is of interest to note the value assigned to abdominal palpation, as shown by HERBERT SPENCER'S communication to the Obstetrical Society of London.[5]

Chief interest, however, centres naturally in the treatment, and this phase of the subject was ably presented before the Obstetric Section of the British Medical Association of Leeds last August. The paper by BRAXTON HICKS is especially noteworthy, and we venture to copy his rules as fairly representative of the highest responsible opinion and of the best practice the world over.

Braxton Hicks[6] writes:

"1. After diagnosis of placenta prævia is made, proceed as early as possible to terminate pregnancy.

"2. When once we have commenced to act, we are to remain by our patient.

"3. If os be fully expanded and placenta marginal, we rupture the membranes and wait to see if the head is soon pushed by the pains into the os.

"4. If there be any slowness or hesitation in this respect, then employ forceps or version.

"5. If the os be small and placenta more or less over it, the placenta is to be carefully detached from around the os; if no further bleeding occur, we may elect to wait an hour or two; but should the os not expand, and if dilating bags are at hand, the os may be dilated. If it appears the forceps can be admitted easily, they may be used; but if not, version by combined external and internal method should be employed and the os plugged by the leg or breech of fœtus. After

[1] The New York Medical Journal, February 1, 1890.
[2] 62 Deutscher Naturforscher Versammlung, Berlin klin. Wochenschrift, Oct. 28, 1889.
[3] Transactions of the American Gynecological Society, Vol. xiv, 1889, pp. 317-333.
[4] Lancet, April 6, 1889, Fitzpatrick.
[5] Lancet, June 15, 1889, p. 1189.
[6] The Medical Press and Circular, Aug. 28, 1889.

this is done the case may be left to nature, with gentle assistance, as in footling and breech cases.

"6. If the os be small, and if we have neither forceps nor dilating bags, then combined version should be resorted to, leaving the rest to nature, gently assisted.

"7. If, during any of the above manoeuvres, sharp bleeding should come, it is best to turn by combined method, in order to plug by breech.

"8. Where the fœtus occurs before the end of the seventh month, version by combined method, no force following, is the best plan.

"To these I may add, if, however, we employ a routine method in all cases, it will be found that the version by combined method, no force following, gives a result as good as, if not better than, any."

BOOK REVIEWING.

One of the famous *literati* of the day makes it a cardinal rule never to read a book before reviewing it, because, says he, "it might prejudice me if I did, and I am always desirous of having my mind unbiased." It might be supposed that the principal idea in reviewing is to point out the good and the bad in the work, to assist in the judgment of the book, and to indicate in a general way its value. Not so! One cannot judge these matters *a priori*. Roughly speaking, we may say that there are at least three standpoints from which the reviewer sees his subject, namely: the commendatory, the condemnatory and the self-laudatory. The character of the review depends largely upon which of these eminences the operator has been located.

It is customary for reviewers of the first class to state, after the usual preliminaries, that it is hardly necessary to more than mention the well-known author's name, but, fearing that there may be among the wide audience addressed, some who are not so fortunate as to know the distinguished author, it would be well to state that the book is gotten up in the usual style of Messrs. Blank, and that the paper and type are good and clear. Altogether, the work is a commendable one and of especial value to the general medical student and busy practitioner. What miserable bathos!

Not so the reviewers of the second class. We rise from a perusal of their work with a feeling that we have been present at an intellectual Donnybrook Fair. Our ears still ring with the blows of the shillalah, for the only rule of action seems to be to strike at everything in sight. What is left of the book after the melée usually goes by unchallenged.

Our self-laudatory friends have an entirely different *modus*. The main desire among them seems to be, to direct attention to the great loss the author sustains in not having invited them to assist him in editing his work. The many points neglected or not known are freely pointed out and elucidated. The whole matter calls to mind very vividly Dr. Beale's article on intestinal mucous membranes. He says that successful critics are often constipated, and that many a severe article would never have seen the light, if the glands of the critic's large bowel had been in good order at the time of writing. A little humiliating, is it not, and a sad exemplification of human frailty—that the foundations for adverse criticism should rest upon the baseless fabric of such structures.

THE EARLY PREPARATION OF PAPERS.

The Secretaries of the various Sections are actively engaged in securing a supply of papers to be presented at the next annual meeting which convenes at Nashville on May 20.

May we suggest that the writers of such papers, if they have not already done so, enter immediately and in earnest upon their work? Let the several articles represent their purpose fully and receive at the hands of the writers a most careful revision, and when revised it is desirable, as far as practicable, that type-written copies be presented for publication. Those who are to command the time and attention of their associates should have the matter to be presented well matured and concisely expressed. The future success of the Association is largely dependent upon the value of papers thus presented, and its status both at home and abroad is to be determined largely by the work thus submitted.

Let there be a full supply of papers; let them bear the evidence of careful preparation, let them receive ample and able discussion when presented, and let both papers and discussions find their way in good shape to THE JOURNAL. Thus will its pages be furnished to repletion with valuable matter, and the Association be justly represented as to the ability of its writers.

PAPERS FOR THE ANNUAL MEETING.

From the known efficiency of the officers of the several Sections, it is safe to presume that a full supply of papers will be secured for the next annual meeting.

If every Section shall be as well represented as it was at Newport there certainly will be no lack. We commend to our present committees the work done by their immediate predecessors and simply ask them to do likewise.

The several secretaries are already in correspondence and as soon as their programmes are ready for publication they will appear in the JOURNAL.

Writers will please bear in mind that the earlier their names appear on the programmes of their several Sections the earlier they will be placed in the order of publication.

In order that those who so desire may communicate with the officers we herewith present the names and addresses of the secretaries of the several Sections.

As the programme should be completed and ready for publication on April 1 no time should be lost on the part of those who purpose to prepare papers to be presented at Nashville.

The name of the secretaries of Sections are as follows:

Practice of Medicine.—Dr. H. McColl, Lapeer, Mich.

Surgery and Anatomy.—Dr. Jno. Blair Deaver, 120 South 18th street, Philadelphia, Pa.

Obstetrics and Diseases of Women.—Dr. Joseph Hoffman, 126 W. Diamond street, Philadelphia, Pa.

State Medicine.—Dr. F. S. Bascom, Salt Lake City, Utah.

Opthalmology.—Dr. E. J. Gardiner, 70 Monroe street, Chicago, Ill.

Laryngology and Otology.—Dr. Frank H. Potter, Buffalo, N. Y.

Diseases of Children.—Dr. E. F. Brush, Mount Vernon, N. Y.

Medical Jurisprudence.—Dr. T. D. Crothers, Hartford, Conn.

Dermatology and Syphilography.—Dr. Wm. T. Corlett, Cleveland, Ohio.

Oral and Dental Surgery.—Dr. E. S. Talbot, 125 State street, Chicago, Ill.

EDITORIAL NOTES.

HOME.

THE METROPOLITAN MEDICAL SOCIETY.—A new medical society has been started in New York city, which will not limit its membership to the city itself but will draw from the entire metropolitan district. Meetings will be held twice a month.

MEDICAL STUDENTS NAMED IN A WILL.—Mayor Grant, of New York city, has received information that the will of Count Henry Hardegg, who died at Vienna, Austria, in May last, names that former city as a possible legatee. The bequest, if it ever comes, is to be set apart for the benefit of struggling medical students. The amount of the legacy has not yet been discovered.

THE ARKANSAS STATE ASYLUM DAMAGED BY FIRE.—The Insane Asylum at Little Rock, Arkansas, was very nearly destroyed by fire on the 16th instant. One wing was burned down, involving a loss of $35,000. There was no loss of life although the inmates, numbering nearly five hundred, had all to be removed from the buildings. Many of the patients resisted removal and by their outcry and screams increased the terrors of the accident. The boiler-room and laundry are thought to have been the parts in which the fire originated.

DR. FRANK FERGUSON, pathologist to the New York Hospital, has been elected Professor of Pathology in the New York Post Graduate Medical School and Hospital.

TYPHUS FEVER IN NEW YORK.—During the past two months typhus fever has escaped through the quarantine of the New York Harbor, and thence found its way to various parts of the country. The line of steamers from Antwerp has brought in the greater number of these cases, and especially the steamer Westernland. In the New York city hospitals as many as seven cases have been among the immigrants brought over by that steamer. There is said to be at Antwerp one or more emigrants' lodging-houses that are known to be infected with fever,—"fever-nests" that menace the health of two continents. Official correspondence has been had regarding these dangerous spots, calling for their sanitary reformation.

C. S. AYRES, A.M., M.D., the well known

oculist of Cincinnati, has been elected President of the Cincinnati Polyclinic Graduate School of Medicine. This institution could have no better assurance of success than calling such an able and widely known man to the presidency.

DEATH OF MEDICAL DIRECTOR ADRIAN HUDSON, U. S. NAVY.—The medical corps of our Navy suffers a severe loss in the sudden death of this valuable officer, who died at his post, in the service of his country, at the early age of 52 years. We present in the present number of THE JOURNAL a brief record of his life and services, which comes to hand from the pen of Surgeon Albert L. Gihon.

FOREIGN.

PHTHISIS IN HIGH ALTITUDES IN SWITZERLAND.—*The Lancet* quotes a report by Dr. L. Schrötter on the distribution of tuberculosis throughout Switzerland, from which it appears that even the inhabitants of high altitudes are not free from that disease, as many are wont to suppose. The mortality statistics of recent years indicate that no district is exempt from it. The proportional mortality by phthisis is not so great in the high as in the low-lying sections, but the statistics do not show that it would be a correct statement to formulate the ratio as inversely proportionate to the altitude. The element of occupation here steps in; for wherever a large industrial population exists the tuberculous mortality ascends; agricultural populations always suffer less, from this cause, than the industrial, where the altitude is the same for both.

CHOLERA IN RUSSIA.—The general public in Russia having become alarmed at the possibility of cholera following upon the heels of the influenza, by reason of some causal relation between the two diseases, the Medical Council of St. Petersburg has published the following bulletin: In view of the fact that according to the latest scientific discoveries all epidemic disease is produced by germs of contagion, each of which possesses a specific character; and in view of the fact that no species of microörganisms producing a definite disease is capable of such transformation as to enable it to produce another disease, each species of the microörganisms preserving for ages its original characteristics; and considering also the fact that no contagious disease can prevail in a locality if its proper germs of contagion have not been previously introduced, the Council declares that the epidemic of grippe can not engender an epidemic of cholera. Although, in fact, the sanitary conditions have exercised no influence upon the propagation of the grippe, the Council finds, nevertheless, that it would be very opportune and useful to provide for the proper sanitation of the city.

THE death of Dr. Gerhard, the senior member of the Faculty of Medicine of Paris, at the age of 81, has just been announced. He is stated to have been in active practice to the end, and had been so for fifty-two years at Strasburg.

BENARES, the sacred city of the Hindoos, and next to Damascus the most ancient city in the world, is to have a water supply, while Delhi, the ancient seat of the Mohammedan Empire, is to be equally fortunate in obtaining a large public water supply.

SURGEON LE QUESNE, of the British Army, has received the Victoria Cross for bravery in dressing the wounds of an officer while exposed to the fire of the enemy during an engagement in Burmah last May.

LEPROSY IN CHINA.—Leprosy is viewed by the Chinese as infectious, contagious and hereditary, but it is prone, they think, to exhaust itself in four generations. As many as eight varieties of leprosy are recognized. In the interior of China there are leper-villages to which all suffering from this disease must be sent.

MEDICAL CONGRESS IN CUBA.—The *British Medical Journal*, January 11, has the following notice of a congress set down for January 15, at Havana: "Many of the principal members of the profession are expected to take part in the proceedings. Among the subjects for discussion are hæmatochyluria, the use of mercury in the torrid zone, physio-pathological studies of Cuban women, origin of Cuban yellow fever and others suggested by the *genus loci*. In the surgical department there is a great preponderance of ophthalmological subjects and a total absence of cancer."

PROFESSOR VON ZIEMSSEN, of Munich, reached his 60th birthday December 13. It was the occasion of a celebration by the faculty and students of the University.

TOPICS OF THE WEEK.

A JOURNALISTIC REVIEW OF THE BRITISH REGISTRAR GENERAL'S ANNUAL REPORT FOR 1888.

For such persons as, with King Richard II., love to "sit upon the ground and talk of worms and graves and epitaphs" and kindred subjects, there is much congenial reading to be found in that portion of the Registrar-General's annual report which deals with deaths. The recently issued report is for the year 1888, which in these nineties sounds very much like ancient history; but the methods of the Registrar's office are notoriously leisurely, and, after all, there are certain advantages in a late appearance. For instance, it affords an opportunity of drawing comparisons between this country and others which make greater haste in getting out their statistics. From these we learn that only one European country has a lower death-rate than England—to-wit, Norway, where only sixteen persons out of a thousand die in a year. The other end of the pole is in Austria, where the rate is 29.2. With us it is 17.8 for a population of over thirty-seven millions. It has often been pointed out that these figures in no way represent an equal distribution of sex, women being in the majority by very nearly a million. In common justice it might at least be expected that, there being a greater number of women, more of them should die, but this is not the case. For males the death-rate is 18.8 per thousand; for females only 16.8. Women, in fact, have the advantage of a greater hold on life nearly all along the line. The first five years of existence are a most ticklish time for both sexes, but the girls get through them much better than the boys, who in that period die at the rate of fifty-two to a thousand living males. Out of a total of 510,971 deaths in 1888, as many as 198,064 were those of children under five, and boys were in excess by nearly seventeen thousand. The dangerous first *lustrum* once passed, a few years of comparative safety commence, till the age of ten is reached, when the chance of death occurring is reduced to its minimum. From fifteen it slowly rises again, and it is only at this period in life that males have the upper hand, there being a slight excess of female mortality.

The recognized causes of death are more than might be supposed, over 150 being enumerated on the register. The rate at which we live in the nineteenth century is borne witness to by the rate at which we die, no fewer than 49,985 of registered deaths in 1888 being attributed to diseases of the nervous system. Consumption and phthisis, apparently, are not disappearing so rapidly as some sanguine persons have supposed. Third on the list are the ailments classed together as diseases of the circulatory system. What at first sight seems startling is the greater mortality caused by illnesses which are not as a rule reckoned very alarming in comparison with others which have the name of being more serious. Thus 341 persons out of a million living die of measles and only 6 of typhus; 222 die of scarlet fever to 36 killed by small-pox; 428 of whooping-cough to 168 victims of diphtheria. The explanation is, of course, that the complaints which account for the larger number of deaths are proportionately more common. The odds against life running what may be supposed to be its natural course are something less than a thousand to one. Only 947 deaths of a million are put down to old age. The difference in degree of vitality which distinguishes the two sexes is further marked by the varied way in which they are affected by the same disease. More men dying, it is to be expected that any given disease would be more likely to be fatal to a man than to a woman; and this, as a general rule, is the case. Scarlet fever is far more common among females than males, but the former have a much better chance of getting over it, the majority of deaths due to this cause being among men. Cancer, St. Vitus's dance and whooping-cough constitute the whole list of complaints common to the two sexes which are more fatal to women. The greater liability of girls to whooping-cough is strongly marked —554 die of it to 451 males.

Perhaps the most morbidly fascinating of the Registrar's statistics are those dealing with what are classified as deaths from violence. In the year under notice such deaths numbered only 17,534, the lowest percentage yet reached. Violence includes homicide, suicide and fatalities arising out of accident or negligence. In murder, if in nothing else, there is absolute equality between the sexes. Nine per million of each die by the hand of another. The proportion seems a large one, but as many as 60 per cent. of homicidal deaths are infanticides. The first twelve months of life escaped, the odds against murder decrease till the age of 15 is reached, when there is next to no chance of it. For a few years this happy state continues, and then the chances increase again till, if the case happens to be a man, the older he grows the more likely he is to be made away with. The suicides of the year numbered 2,308, which is the largest amount ever recorded for this country. In this department, again, males greatly outnumber females, who are either less given to despair or are more tenacious of life. Gunshot, the knife, poison, drowning and hanging are the favorite means employed for disposing of life by suicide, and of these hanging is far the most common. It is sad to reflect that out of every million men now living in England twenty-seven will hang themselves, sixteen will meet death in the water, thirteen will cut their throats and seven shoot themselves. Women will make away with themselves in lesser numbers, but by the same means, with the exception of shooting, which is a method of *felo-de-se* that has scarcely ever been used by a woman. Experience has shown over and over again that there is very little probability of being proved wrong by the event in speaking prophetically of suicide and the manner of it. Year after year there is scarcely any variation in the melancholy record, and when once it is known that a certain number of persons have sought death by certain means in the past, it may be taken for granted that the figures will repeat themselves with remorseless accuracy.

Of the violent deaths there remains a balance of 14,908 which are accounted for by accidents. Large as the number seems, it is a trifle to what might be expected from the rates charged by assurance companies. The

usual odds laid by an accident company are £1,000 to £4 that you do not die from an accident in a year. Supposing that the whole population of the country were insured against accidents in one office, each person paying £4 and being guaranteed £1,000 in case of death by mishap, the premiums would reach the figure of £143,746,868, and the sum to be paid for deaths would amount to £14,908,000, leaving, after a deduction of a few millions for working expenses, the very respectable profit of £130,000,000. The chances of meeting with accidental death are highest in Monmouthshire, where there are 902 to the million, and next in the northern mining counties. In London the number per million is 697; and lowest on the list comes Bedfordshire, where it is only 343. Bedfordshire, then, is the place where those who have a horror of sudden death should locate themselves, but the county which has a lower death-rate than all others is Surrey—excluding, of course, the metropolitan area. Lancashire still maintains its reputation as the county seat where more deaths occur in proportion to its population than any other in England.—*St. James Gazette.*

PROFESSOR TYNDALL ON THE GERM THEORY.

If lucid and full exposition is sufficient for instruction, the address lately delivered in the Ulster Hall, Belfast, by Professor Tyndall must have left his audience with a fairly clear idea of the part played by living organisms in disease and putrefaction. The facts connected with this notable discovery of modern times were marshaled by the speaker with great skill and in a descriptive manner which could hardly fail to interest the most casual hearer. The close connection between Lister's experiments and the conspicuous triumphs of recent surgery were briefly but clearly explained. The important part played by the genius of Koch in disclosing the germ origin of tubercle, splenic fever and cholera was discussed at some length. An illustrative confirmation of the experiments with tubercle was afforded by quoting the observations by Cornet, which go to prove that the infective media of phthisis consist of germs liberated in the dust of dried sputum, but harmless while imprisoned by it in a moist condition. The climax of interest was reached, however, in those passages of the address which described the life and work of the prime investigator of germ action—Pasteur himself. The recital of the steps by which this most laborious and careful observer proceeded from a general recognition of the principles governing the growth of living organisms to a clear understanding of their specific influence forms in itself a chapter as romantic as it is real in the history of modern science. Remarkable though it is, however, Professor Tyndall had no difficulty in showing that it is excelled alike in interest and in importance by the narrative of those practical deductions, the explanation and application of which have conferred on Pasteur's work its most characteristic feature and its chief glory. Growers of silk, who learned from him the germ origin of *Pebrine*, wine-producers and brewers, to whom he taught the causes of morbid fermentation and its easy remedy, were among the least of those he has aided. For a time he took no directly active share in unlooking the secrets of germ growth in the human body. Later, when animated, perhaps, by the example of his German counterpart, Koch, Pasteur bent his energies to this new sphere of his old work, his success, now historical, was even more striking. We need not do more than refer to the remarkable series of experiments which culminated in establishing triumphantly the preventive and curative power of modified inoculation over such intractable scourges as anthrax and rabies. Professor Tyndall did well to acquaint his hearers with some of the details of these researches. He was also particularly happy in closing with a statistical summary of the results obtained by inoculation in rabies, which proves that the mortality from this disease, thanks to the Pasteur method, fell in 1887 from the high average of 70 to that of 3 per cent. Such results, he maintained, asserts with a logical force which cannot be resisted the reason and the justice of performing, even though it imply vivisection, such experiments as are needful for their attainment.—*The Lancet.*

INFLUENZA AND DENGUE.

The *Berliner klin. Wochenschr.* has recently published a tabular comparison of influenza and dengue by Dr. Limarkis, of Constantinople, to the following effect. D. stands for dengue, I. for influenza. Localization: D. hot countries; I. all latitudes. Duration of epidemic: D. three to five months; I. one to two months. Extension: D. slow, and from small centres; I. rapid, and over large tracts at a time. Commencement of disease: D. always sudden; I. almost always sudden. Fever: D. always very high; I. not always very high. Nervous system: D. lassitude, pains in the head and limbs; I. the same. Larynx and trachea: D. seldom affected; I. always affected. Dyspnœa: D. never; I. frequent. Gastric symptoms. D. always present, violent and persistent; I. may be absent altogether. Exanthem: D. always, beginning in face and descending, erythematous, followed by desquamation; I. seldom, irregular. Headache: D. a feeling of pressure from without; I. sharp, internal, often neuralgic. Complications: D. rarely the heart, liver, or kidneys may be affected; I. frequent, chiefly bronchitis and pneumonia. Reconvalescence: D. very slow; I. usually quick. Prognosis: D. always favorable; I. occasionally bad. Lower animals affected: D. dogs and cats; I. horses. As regards Spain, Dr. Sentifion writes that the epidemic which is rapidly gaining ground there is undoubtedly influenza, and it is distinctly different from cases of dengue, which have been well observed in that country. The question—influenza or dengue?—has been raised by medical men, in Paris especially, but authorities incline to the belief that the two diseases have nothing in common.

TIME SOLVES MYSTERIES.

At last it becomes apparent that when Columbus set his face westward, he had Chicago in his eye. It seems a little singular that it required four centuries to determine the nature of his malady.

PRACTICAL NOTES.

MENTHOL IN ACUTE RHINITIS, INFLUENZA, AND OTHER AFFECTIONS OF THE NOSE AND THROAT.

Mr. J. Lennox Browne, F.R.C.S., Ed., writes in the *Medical Press and Circular*, Jan. 8, 1890, regarding the use of menthol in the above affections, which our readers will find a subject of interest at the present time. He says that the vapor of menthol checks in a manner hardly less than marvellous, acute colds in the head, and is also to be recommended with a certainty of success, if used on its first onset, in arresting or as a preventive of infection of epidemic influenza, and this even for cases in which the nasal symptoms commonly associated with the word influenza, are not manifested.

Menthol exerts its action as follows:

1. It stimulates to contraction the capillary blood-vessels of the passages of the nose and throat, always dilated in the early stages of head cold and influenza.

2. It arrests sneezing and rhinal flow.

3. It relieves, and indeed dissipates, pain and fulness of the head by its analgesic properties, so well known by its action when applied externally to the brow in cases of *tic douloureaux*.

4. It is powerfully germicide and antiseptic. It thus kills the microbe of infection, and prevents its dissemination.

The remedy may be employed by means of a general impregnation of its vapor through a room or house, or locally to the nostrils and air passages; for both which purposes there are several methods:

a. A 10 to 20 per cent. solution of menthol in almond oil, in liquid vaseline, or in one of the many other odorless paraffin compounds, can be sprayed into the nose or throat, or about a room.

b. By placing 20 or 30 grains in an apparatus specially designed by Rosenberg for administering the drug in cases of laryngeal consumption by inhalation, in the form of vapor mingled with steam.

c. By placing a similar amount or one or two drachms of the oily solution in a Lee's steam-draft inhaler, or bronchitis kettle.

d. By a simple arrangement of placing a saucer of water containing a similar quantity of the crystals over a gas burner in the hall, by means of which the whole house is kept constantly permeated with the drug.

e. But by far the most convenient method for personal use is to carry always the ingenious pocket menthol inhaler, known as Cushman's, which should be used not only on the first approach of an attack, but three or four times a day during an epidemic, and always in cold-catching weather by those subject to head colds.

The instrument consists of a glass cylinder four inches in length, half an inch in diameter, and open at both ends. The tube contains crystals of menthol closely packed and prevented from escape by perforated zinc and cork. The opening at one end is twice the size of the other, the larger being intended for inhalation by the mouth, the smaller for the nostril. The latter is the method which the author, by preference, recommends. It is not to be simply smelt, but well sniffed or inhaled, so as to cause some tingling or smarting, a sensation which is quickly followed by that of coolness, and openness of the previously "stuffed" and heated nostril.

The author concludes: "I have also employed menthol with advantage in the form of nasal spray or brush application in diphtheria. For all forms of nasal disease causing obstruction to the natural breath-way, I prescribe the menthol inhaler to the extent of hundreds per annum. By its use, when the nasal discharge is excessive, it is checked; when deficient and thickened, as in hypertrophic rhinitis, its healthy character is restored; and when arrested, inspissated and malodorous, as in atrophic rhinitis, fluidity is promoted and the foul smell corrected."—*Boston Med. and Surg. Journal.*

A VALUABLE PRESERVING FLUID.

Dr. Alexander Macalister, in his recent Text-Book of Human Anatomy, recommends the following mixture for the preservation of anatomical material:

Alcohol	30 per cent.
Glycerine	10 " "
Carbolic acid	2 " "
Water	58 " "

TREATMENT OF SCARLET FEVER AND QUINSY BY CHLORAL HYDRATE.

Dr. James C. Wilson highly recommends chloral hydrate in scarlet fever in frequently repeated small doses of one to five grains, according to the age of the patient, as easy of administration and being made palatable, and well tolerated by the stomach. having a marked sedative effect, which is highly satisfactory; controlling the inflammation in degree and extent both in the throat and kidneys, and preventing the complications and sequelæ, such as otitis media and glandular inflammation. In quinsy also, another writer says, a gargle of three or four grains to the ounce of glycerine is almost a specific.

AN EXCELLENT OINTMENT FOR ACNE

May be formed by taking two parts of resorcin and boracic acid, and adding to it twenty parts of vaseline. This should be rubbed in night and morning, after plenty of hot soap and water and a good rough towel has been used.

SOCIETY PROCEEDINGS.

New York Academy of Medicine.

SECTION ON ORTHOPÆDIC SURGERY.

Stated Meeting, January 17, 1890.

V. P. GIBNEY, M.D., IN THE CHAIR.

DR. W. R. TOWNSEND presented a case of

CONGENITAL TALIPES — RIGHT EQUINO-VARUS, AND LEFT CALCANEO-VALGUS.

The case was of considerable interest on account of its rarity. Mr. Tamplin states that out of 764 cases where the deformity was congenital, there were only fifteen in which there was varus of one foot and valgus of the other; and only nineteen cases of calcaneus. Dr. Townsend said that this case came to him at the Hospital for Ruptured and Crippled on December 23, when only 10 days old. It was the mother's second child, and the labor had been normal; there was no history of club foot in the family. He had already commenced treatment of the right foot, and consequently the deformity was not so marked as when he had first seen the case.

DR. A. M. PHELPS said that this was only the second case of the kind that he had seen; and in connection with it, he desired to present a plaster cast of two feet removed from the womb of the mother after her death at the sixth or seventh month of utero-gestation. It showed equino-varus of the left, and calcaneo-valgus of the right foot, and was an admirable example of the manner in which the deformity had been produced by the pressure of the uterus. There was no history connected with it beyond what had been stated. The original is in Prof. Volkmann's museum at Halle, Germany.

DR. JOHN RIDLON remarked that the chief interest in this class of cases is connected with the subject of their causation. He had seen only one other case, which was shortly after the publication of Dr. H. W. Berg's paper on this subject. This patient had the same deformity, and in addition, clubbed hands on both sides.

DR. V. P. GIBNEY did not think he had seen more than three or four such cases in an experience of eighteen years. He thought that the retarded rotation theory, as explained by Dr. Berg, accounted very well for these cases.

DR. A. B. JUDSON said in regard to the foot affected with calcaneus that, although at first sight it appeared to be a severe deformity, it was quite amenable to treatment, and cited a case published by Dr. Churchill, of Iowa, in support of this assertion, in which he advised simple manipulations, and made an appointment to do a tenotomy one month later. At the end of that time, he was surprised to find that the deformity had entirely disappeared. In another similar case reported by Dr. Prouty, of New Hampshire, the trouble was entirely remedied by the same simple manipulations, so that when the child began to walk, the foot was absolutely normal. A remarkable case had been reported by Dr. Gibney a few years ago to the New York Pathological Society, in which the calcaneus was so extreme that the digits had made indentations on the anterior part of the leg.

The paper of the evening, on

THE OPERATIVE TREATMENT OF TALIPES CALCANEUS, PARALYTIC,

was read by DR. V. P. GIBNEY, who exhibited eight patients illustrating the advantages of the operation described in his paper. This operation was that which Mr. Willett, of St. Bartholomew's Hospital, published in the St. Bartholomew's Hospital Reports, in 1880. The technique is as follows: A large Y-shaped incision over the posterior aspect of the leg, lower fourth, the stem of the Y ending at the os calcis—the stem itself about 1½ inch in length, while each side of the V-shaped portion is about 2½ inches long. The incision exposes the sheath of the tendon. The V-flap is then dissected, the sheath is opened, and the tendo Achillis raised from its bed by a curved director. A strong catgut ligature is passed through the upper portion of the tendon to serve as a means of preventing retraction after section, and the tendon is cut through obliquely, this section being made as oblique as possible. With the vulsellum forceps, each end of the tendon is grasped, and the upper portion pulled down towards the os calcis, while the foot is fully extended and the knee slightly flexed.

The tendon is sutured with catgut, back and forth, with about three or four heavy sutures, and the end of the V-flap brought down to the end of the stem, and the edges sutured, taking every alternate stitch through the tendon itself.

The aim is to convert the Y-shaped wound into a V-shaped cicatrix. It is better to use catgut altogether, in order that the wound may not be disturbed for three or four weeks. Dressings, and plaster of Paris, which extends from the toes up to the middle third of the thigh, the knee being flexed to an angle of about 120°, and the foot extended to the full limit, complete the procedure. The operation practiced by the reader of the paper differs a little from that of Mr. Willett, in the following particular: Mr. Willett used wire and exsected a portion of the tendon. The wire he used was merely for fastening the ends of the tendon together. The objections offered to his mode were that the wire cut through the tendon, and that one was in danger of removing too much tendon.

The paper was based upon an analysis of twenty-eight cases operated upon during the past six years. The results showed seventeen good, eight

fair, and three poor. The term "good" was defined as a useful foot without any relapse after a sufficiently long time; ability also to walk without a brace or support of any kind. "Fair" was defined as a slight stretching of the cicatrix, but not enough to impair the usefulness of the foot. Shoes with the heel raised and a steel tongue are also required to make the gait satisfactory. "Poor" referred to those cases where the cicatrix had stretched and the deformity had relapsed.

The general results, however, were very satisfactory. The time elapsing between the operation and the date of last observation was as follows: From three to twelve months, 9; from one to two years, 15; from two to three years, 1; from three to four years, 1; five years, 1; six years, 1.

Sixteen healed by first intention, 12 by granulation. Of those healing by primary union, 10 were good, 3 fair, and 3 poor. Of those healing by granulation, 6 were good, 5 fair, and 1 poor. In those where granulation took place, the tendon sloughed in three instances, and a portion was removed through the wound. In no instance was a brace required, but particular attention was given to the building of the boot or shoe. The instructions were to have the heel raised at least 1 inch, to have a stiff counter, and a leather tongue reinforced by tempered steel. The hopelessness of paralytic calcaneus was discussed at length; the difficulty of correcting the deformity by means of apparatus; the great strain on the spring itself, the frequency of breakages, and the satisfactory results generally.

Dr. Joseph D. Bryant said that he had been especially interested in the statement regarding the changes which in many cases occur in the length of the new tissues which had been connected by the operation with the tendo Achillis. The subject was of much importance as bearing upon the question of the behavior of cicatricial tissue elsewhere in connection with the repair of deformities of another kind; and although it does not follow that because fibrous tissue in this particular situation retracts after the force has been taken from it, fibrous tissue will do the same thing elsewhere, the subject becomes of immense practical importance in connection with the recent methods for the radical cure of hernia. If we study the behavior of the cicatricial tissue of burns when put on the stretch, we shall find that it will stretch, but that when released, it will return to its former position, or even become more contracted. Such tissue might properly be compared to rubber which is tireless, while the tissue concerned in the operation under discussion might be looked upon as rubber which has become tired.

He would like to know if one of the cases which showed such extreme loss of power was likely to be benefited by a repetition of the operation.

Dr. C. A. Powers was particularly interested in the subject of tendon suture of the hand and wrist, in which he had had considerable experience. He had become convinced that careful antiseptic suture of these cases, with proper rest of the parts, yielded uniformly good results. Primary union seemed to be a requisite for a good functional result in hand and wrist cases, for when healing took place by granulation the tendons became caught in the cicatrix and there bound. He would like to know in what proportion of cases the author had secured primary union, and how the result seemed to be modified when healing took place by granulation.

Dr. R. H. Sayre had noticed that some of the patients exhibited were able to move the heel independently of the long flexor of the great toe, and he supposed that as the paralysis had been only partial, the shortening of the tendon had enabled the weakened muscles to act to better advantage. Such cases ought to be much benefited by the persistent use of massage and galvanism, and they present a much more favorable field for operation than those in which the paralysis is absolute, for under such circumstances shortening of the tendon only results in the formation of an unyielding fibrous cord.

The progress of the deformity, when untreated, must depend largely upon the amount of damage originally done to the spinal cord. He had seen patients with very marked cavus who, instead of walking on the bottom of the heel, walked upon the posterior portion, which had, in consequence, developed an elastic buffer. He had hesitated to interfere, as such cases do not hold out much hope of improvement, and the gait is much better than the appearance of the foot would lead one to suppose was possible.

As regards treatment, he favored the use of a brace similar to the one described by Dr. Gibney, or with an elastic spring to take the place of the gastrocnemius. Such an appliance will give the patient comfort and enable him to move about with less of a wooden tread.

The results shown in the cases this evening are exceedingly good, but he was surprised at the amount of stretching which the cicatricial tissue had apparently undergone. The usual plea against tenotomy is that the resulting scar tissue tends to contract and reproduce the deformity. This, he thought, was a mistake, for the tissue obtained after a subcutaneous tenotomy is not at all comparable to that obtained in an open wound by the process of granulation. There should be no more secondary contraction after a non-suppurative subcutaneous tenotomy than occurs in tissues after aseptic healing by blood-clot. Whatever elongation has occurred in the cases shown this evening in all probability took place not in the cicatrice, but in the muscular fibres above, the paralyzed muscle being constantly antagonized by a normal muscle and thus gradually stretched out.

DR. RIDLON said that one of the patients exhibited had been seen by him last summer, and he had then strongly favored tenotomy on account of the extreme equinus which then existed, but he saw that the foot was now in good position.

In the mechanical treatment of this condition he had been aback, but since Bernard Roth, of London, published the description of his brace for drop-toe with tempered spring at the back of the leg, he had considered that such an instrument, having a spring running from the garter line, with a steel plate to the ball of the foot, was much better than those ordinarily in use.

DR. H.W. BERG was inclined to take a gloomy view of these cases of polio-myelitis; yet he did not consider them entirely beyond help from neurological treatment. Were it conclusively proven that the nervous supply of the posterior group of leg muscles, for instance, is entirely derived from one level of the anterior gray horns in the spinal cord, or from one series of cells in the spinal cord, it is obvious that if these cells had been entirely destroyed, any electrical treatment must of necessity be useless, as regards restoring power to the limb. But it has not been proven that the nervous supply is derived in this way, and it is barely possible that a few cells, giving rise to fibres of any one nerve, have escaped the inflammation. The number of these nerve fibres remaining may be so small as to escape notice in an electrical examination, and yet be sufficient to exert an important influence upon the movements of the foot. Hence, if these healthy nerve fibres and muscle fibres to which they are distributed be stimulated by a galvanic current, they will take on a vicarious action under the irritation of the galvanic current, and will cause even in old cases of poliomyelitis, as he had frequently observed, a decided improvement in the power to extend the foot. In his experience fully 95 per cent. of the cases had been relieved, although none were cured. He did not think that even the most enthusiastic operators claimed that they did more than relieve their cases. A large number would certainly be benefited by the operation described by Dr. Gibney, but any operation including simply the soft tissues was hardly a philosophical one, and could not be expected to give as good results as one which would fix the bony tissues.

It is evident that in the cases exhibited the scar tissue has stretched as the children grew older and the weight of the body increased. This result could be postponed but not averted by furnishing a support for the foot.

DR. JUDSON said that the difficulty in walking experienced by these patients was due to their inability to use the anterior part of the foot, so that the toe cannot be pressed forcibly against the ground, and hence they walk very much like one having a peg leg or an amputation of the anterior part of the foot.

It has been stated that the aborigines of this country were in the habit of performing Lisfranc's amputation upon their captives, who were thus able to work in the fields, but were incapable of rapid locomotion towards liberty. A patient affected with talipes calcaneus is in practically the same condition.

The object of the operation described this evening seems to be to restore some of this function of the anterior part of the foot, so that the patient in walking can bring the weight first on the heel and then on the toe; but it is not easy to understand how the operation can accomplish this, for it is essential that there be very firm union between the calcaneus and the upper extremity of the tibia along the line of the gastrocnemius. With one exception the cases exhibited could not put their weight on the toe at the same time that the well foot was raised from the ground; nor is it reasonable to suppose that they will retain for any great length of time the slight connection between these parts. He was inclined to think that a cicatrix resulting from primary union was less liable to contract than one which occurs after a long process of granulation. It is difficult to overestimate the strain which falls on the tendo Achillis. The great mass of the muscles of the calf gives an indication of this force. The foot may be considered as a lever of the second class, the fulcrum being at the toe, the weight at the ankle and the power at the heel. The long and short arms of the lever are represented respectively by the portions between the ankle and the toe and the ankle and the heel, and the strain produced by the weight of the body is thus multiplied, as it falls on the tendo Achillis.

He thought that much could be done for these patients by mechanical treatment, and the object of his brace was to transfer some of the weight of the body to the anterior part of the foot. In the brace formerly described by him there was a joint at the ankle to arrest motion at a right angle; but the brace has been rendered much more durable and equally efficient by the omission of the joint in the present instrument. The weight which naturally comes on the plantar surface of the anterior part of the foot in a well person, with this apparatus comes upon the anterior part of the upper portion of the tibia in the neighborhood of its tubercle, so that the patient first strikes the heel and then puts the weight upon the anterior part of the leg in its upper portion, thereby decidedly improving the gait. The sensation is very much like that of kneeling, for the weight, instead of coming on the ball of the foot, as in the healthy person, comes on that part of the tibia which takes the weight when in the kneeling posture. These cases can not, of course, be cured by the use of such apparatus, but adult patients are often very glad to wear a simple and durable apparatus which improves the gait.

Dr. Judson remarked that Dr. C. Fayette Taylor had once said that one reason for the muscular degeneration which occurs in these cases is that the weakened and half paralyzed muscles, being compelled to endure such an enormous strain, yield at once; but if they are relieved, by means of an apparatus, of some of this duty, they are less likely to undergo such degeneration, and, therefore, the chances are better for ultimate improvement.

Dr. Frederick Peterson agreed with the reader of the paper regarding the uselessness practically of the galvanic and faradic currents in these old cases; for, he did not believe that the current could restore destroyed muscle fibre or degenerated nerve fibres or cells.

Dr. H. L. Taylor said that in considering tenotomy, one must remember that in most cases, not only the muscle but the tendon itself, is atrophied, so that it is at times a mere thread. These cases of calcaneus are exceedingly difficult to treat, and any real advance will be very welcome; but he considered that the mechanical treatment was fairly satisfactory as a palliative measure. We can retain the foot in a position of election for an indefinite period, and improve locomotion by enabling the patient to transfer the weight from the heel to the ball, not of course through the tendo Achillis, but by impinging on the upper end of the tibia by means of an apparatus.

He wished to lay emphasis on the statement that calcaneus could usually be prevented from developing, when these paralytic cases were seen sufficiently early. The foot could be held with absolute precision; and although he had followed for a considerable time, cases of paralysis of the posterior tibial muscles, he could not recall a single one in which calcaneus had developed under proper mechanical treatment.

Dr. Phelps said that in cases of flail foot with absolute paralysis, he was accustomed to do an excision, or a Pirogoff's amputation, which is a safe operation providing firm anchylosis can be secured. Unfortunately this is not always obtainable in children. When the tendon unites primarily, union takes place by blood-clot, and the result is not cicatricial tissue but a reproduction of the tendon; and therefore stretching cannot take place in the tendon itself, but in the body of the muscle. The same argument has been brought forward against the open operation for club foot, only it has been claimed that the cicatricial tissue contracted; but when healing by blood-clot follows that operation, the cicatricial mass does not contract, nor did he believe it yielded. From birth up to the third or fourth year, and even later, there is a development of the deformity, and therefore in estimating the beneficial results from any special method of treatment, one must wait a similar length of time before passing upon the result.

He had been much interested in Dr. Gibney's cases on account of the candor with which they had been presented, and the care exhibited in securing careful histories; but until the ultimate results could be ascertained, he preferred to cut the anterior tendons when required and apply a brace similar to the one which had been presented; or a brace with a posterior rubber muscle acting on a lever attached to the sole of the shoe; and in special cases, either Pirogoff's amputation or excision.

Dr. Gibney in closing the discussion, replied seriatim to the questions that had been propounded. He could not say whether a second operation in one of the cases would be of any benefit.

He had not entirely completed his table of results, and could only say that about one-half of the cases had healed by primary union, and that his analysis, as far as it had gone, failed to show much difference in the results dependent upon the method of healing. He had of course always aimed to secure primary union; but some of his best results had been obtained in cases in which the granulating process had been tedious, and even where some of the tendon had protruded, and had sloughed away, or had required removal.

He was sorry that he was unable to furnish records of systematic electrical examinations in these cases; but in the hurry of hospital work, this portion of the work had frequently been omitted. He had, however, the report of an examination made by Dr. M. A. Starr before the operation on the little boy who had attracted attention by his ability to stand on his toe and on the ball of his foot. Dr. Starr reported at that time—two years ago—that the posterior group of muscles showed well marked reaction of degeneration, and failed to respond at all to the faradic current, and he gave it as his opinion that it was very doubtful if recovery would take place. Dr. Gibney thought that most of the gentlemen present would agree with him in saying that the patient now had considerable power in that posterior group of muscles.

In alluding to electrical treatment, he did not intend to disparage all such treatment, but simply to record his own disappointment with it in connection with confirmed cases of calcaneus. He believed with Dr. Berg, that if certain nerve fibres still remained intact, they could be developed by appropriate treatment. He was also willing to admit that an operation which secured anchylosis or synostosis was capable of giving a very useful foot; but from what he had heard of the operation, there seemed to be good cause for doubting the permanency of the results. Besides this the operation was a much more formidable one than that which he had described in his paper, and it would often be impossible to secure the consent of the parents to perform it, while they would willingly agree to the other operation.

In regard to mechanical points raised by Dr. Judson, it must be remembered that in addition to the gastrocemius muscle, the perineal group and some of the interossei are also involved.

In only one of his cases had he met with the ribbon-like form of the tendon, and the result of this case is reported as "poor." When this condition exists, the tendon must be brought further down, and particular care exercised in the process of suturing, aiming to have the tendon well embedded in the V-shaped flap.

DR. PHELPS presented a specimen that was apparently an intracapsular fracture of the femur. It had been removed from a man in the dissecting room, who was noticed to have the legs flexed and abducted, and twenty or more sinuses, healed and unhealed, about the thigh, which had burrowed in every direction. Through a most unfortunate mistake on the part of those who secured the specimen, the soft parts were all carefully removed. The pus is stated to have come from a cavity behind the mass of new bone which is seen in the acetabulum; and the new joint is found to be perfect. When the specimen was exhibited a few evenings since before the Surgical Section, it was thought to be a case of old hip joint disease; but the specimen clearly shows, since sections have been made, that this is not the case, and is of peculiar interest as illustrating the utter impossibility of curing such a case by mechanical treatment. It was a strictly surgical case, and unless the sinuses were followed up and treated by thorough curetting and free drainage with antiseptic precautions, the man must have died, as he did die, from amyloid disease of the liver and kidneys.

DR. J. D. BRYANT concurred in the opinion that this was a case of intracapsular fracture.

A SIMPLE METHOD OF PREVENTING THE BREAKING OF PLASTER AND WAX CASTS.

DR. PHELPS exhibited two casts so treated. He said that in order to render plaster or wax casts almost unbreakable, it was only necessary to rub well the surface of the cast with plumbago, and then by the process of electro-deposition, cover the whole surface with a film of copper about 1 mm. in thickness. To illustrate the efficacy of this method, the speaker took one of the specimens, a large cast illustrating Dupuytren's Contraction, and threw it violently upon the floor, without its sustaining the slightest damage.

The other specimen had already been shown at the meeting in connection with Dr. Townsend's case of club feet.

PROF. EDUARD VON WAHL, of Dorpat, one of the editors of the *St. Petersburger medicinische Wochenschrift*, died on Jan. 29, in consequence of an accident he met with a short time ago, by which several of his ribs were fractured.

NECROLOGY.

Medical Director Adrian Hudson, U. S. Navy.

The medical corps of the navy has recently suffered the loss of one of its ablest and most estimable members in the person of the late Medical Director Adrian Hudson, who died at the U. S. Naval Hospital at Mare Island, California, of which he was in charge, on Friday, the 7th instant, after a few days illness from pneumonia, following an attack of "Grippe."

Dr. Hudson was born in Montreal, Canada, of an American father and English mother on Christmas Day, 1837, and was consequently only a little over fifty-two years old at the time of his death. He was educated at the McGill University, at Montreal, and entered the naval service as an assistant surgeon on the 30th July, 1861, his first duty (1861–62) being with the Mississippi Flotilla, where marked mention was made of his skill and gallantry. He was next attached to the steam gun-boat "Eastport," of the Mississippi Squadron (1863) and to the apprentice ship "Sabine" (1864–65). He was made Passed Assistant Surgeon June 22, 1865, and promoted to Surgeon on the 17th August of the same year. He served aboard the U. S. S. "Tuscorora," in the South Pacific Squadron (1866–67), and was stationed at Mound City, Illinois (1868–70). He was the Surgeon-of-the-Fleet on the North Atlantic Station on board the flag-ship "Ancestor" (1874–75), and stationed at the Navy-Yard, Washington, D. C. (1875–78).

In 1879 he was appointed Assistant to the Chief of the Bureau of Medicine and Surgery at the Navy Department, and on the 10th June, 1880, he was commissioned Medical Inspector. He was senior member of the joint Army and Navy Board, on which Dr. Billings represented the Army, to locate and establish the Army and Navy Hospital, at Hot Springs, Arkansas.

His last duty at sea was on board the flag-ship "Trenton," of the Pacific Station, from which, having been promoted to Medical Director, July 10, 1888, he was detached and ordered to the charge of the Naval Hospital at Mare Island, California, thus escaping the disaster at Samoa. At the time of his death he was President of the Naval Medical Examining Board on the Pacific Coast.

He became a member of the American Public Health Association in 1882.

Dr. Hudson was distinguished by high professional attainments and remarkable executive ability, and was an earnest advocate of higher medical education. His kindly disposition and genial nature won him hosts of friends in other corps as well as in his own by whom his loss has been very deeply felt.

Professor H. Frey.

The Zurich school boasted of few more accomplished biologists or effective teachers than Dr. Heinrich Frey, who having retired after forty years' active work, lived but a few months in enjoyment of his well-carned repose. He was born at Frankfort-on-the-Main on June 15th, 1822, and at twenty-five years of age had qualified by brilliant preliminary studies for the post of *Docent* in the University of Göttingen. In 1848 the medical faculty of Zurich nominated him Extraordinary Professor, and in 1851 Ordinary Professor, in both of which capacities he more than justified his appointment. In 1855 he undertook the Professorship in the Polytechnic of Zurich, and also the post of Director of the Microscopo-Anatomical Institute. From 1854 to 1856 he also filled the position of Rector in the "Hochschule" with the greatest acceptance. Over and above his official duties, his work in the physiological laboratory was unremitting, and in the books he published on physiology he evinced such independent and thorough research, and such clearness and felicity of style, that they speedily found a far wider public than that to which they were primarily addressed. They were translated, indeed, into nearly every European language, and still retain their value as models of scientific induction and lucid exposition, particularly the "Histologie und Histochemie des Menschen" and the "Mikroscop und die Mikroscopische Technik." Besides his proficiency in the studies bearing directly on on his special department, Professor Frey was one of the most accomplished entomologists of Europe, and his contributions to entomology are at once among the most voluminous and most valuable of their kind. He was corresponding fellow of a large number of learned and scientific bodies on both sides of the Atlantic, and had not ceased to contribute effectively to their Transactions when death removed him, in Zurich, on the 17th ult., in his sixty-eighth year. —*The Lancet.*

Dr. J. B. Halsey

died at Baker City, Ore., in December last. He was one of the pioneer practitioners who crossed the plains in 1865, to enter the eastern part of the Territory. Since 1875, he had had his home at Baker City.

Dr. George D. Norris

died at Newmarket, Ala., aged 78 years. He was formerly Professor of Anatomy in the Baltimore Medical College. He was a graduate from Maryland University nearly sixty years ago, and had been a resident of Newmarket for more than half a century.

BOOK REVIEWS.

ANNUAL REPORT OF THE SUPERVISING SURGEON-GENERAL OF THE MARINE-HOSPITAL SERVICE OF THE UNITED STATES FOR THE FISCAL YEAR 1889.

This report from Surgeon-General John B. Hamilton is unusually voluminous and is replete with interesting matter. The United States Marine-Hospital Service, says Dr. J. B. Lindsley in his address before the American Medical Association last June, "has altogether outgrown its name and should be styled the United States Public Health Service." It has already successfully administered the affairs of maritime and interstate quarantine, furnished aid to sufferers from epidemics, and accomplished much good work in the line of scientific research. How satisfactory has been the character of the work accomplished by this service is witnessed in the complimentary resolutions (relative to the management of yellow fever) adopted by the Florida Legislature.

Among the many points of interest in the present report of the Surgeon-General is the concluding portion of the report of the yellow fever epidemic in Florida. This contains clinical records of a number of cases treated at Camp Perry; a general history of the epidemic is also given. An interesting paper appears on the subject of chagres fever. Considerable space is given to a description of quarantine appliances recently introduced in the service. The director of the hygienic laboratory, Assistant Surgeon Kinyoun, reports that a lengthy series of experiments in quarantine disinfection is about completed, and bacteriological investigations of various diseases are receiving much attention. Special investigations are also being made of Weigert's method of treating tuberculosis; the rôle played by the hands of nurses and assistants in the infection of wounds; of tuberculosis; of the pathogenesis of anacrobic microbes, etc. The report of Dr. Geo. Sternberg upon "The Prevention of Yellow Fever by Inoculation, Made in Compliance With Instructions from the President," gives a detailed account of the investigator's researches in Brazil, Mexico and Cuba, together with a reply to the charges made against Dr. Sternberg and Dr. Góes (of Rio de Janeiro) by Dr. Freire.

A number of selected cases from hospital practice and numerous reports of autopsies add greatly to the interest of the volume.

It is to be hoped that the day is not far distant when a public health department, adequate to the needs of the country, shall be established, and it is believed that it is the sentiment of the medical profession that the establishment of such a department with a Cabinet Minister at its head has already become a pressing necessity.

A TEXT-BOOK OF HUMAN ANATOMY, SYSTEMATIC AND TOPOGRAPHICAL, including the Embryology, Histology and Morphology of Man, with special reference to the requirements of Practical Medicine and Surgery. By ALEXANDER MACALISTER, M.A., M.D., F.R.S., F.S.A., Professor of Anatomy in the University of Cambridge and Fellow of St. John's College. With 816 Illustrations. Philadelphia: P. Blakiston, Son & Co. 1889.

The well known publishing house of P. Blakiston, Son & Co. have rendered valuable service to the medical profession of this country by bringing out an American edition of this valuable text-book. The volume is evidently a work of years. It was hardly necessary for the author to write that "the descriptions here given have been written in the dissecting-room, and checked over and over again by comparison with dissections." The evidences of original observation are manifest on every page. It deals briefly with the evolution of form; describes the nature and arrangement of tissues, and then passes to the study of the bones, the joints and the soft parts in the order in which they are to be considered in the dissecting-room.

Every organ and structure of the body is described with extreme fidelity, and the student of anatomy with this book in hand is well equipped for whatever work he has in hand. The illustrations are ample and beautiful and the text well suited in every respect to assist the student, and will prove an admirable book for reference.

In this volume of 750 pages students and physicians will find an unfailing guide in the prosecution of dissections and a book of ready reference in all anatomical matters. Whatever other works may be upon the shelf, this text-book added to the list will repay the investment.

SOCIETY NEWS.

ILLINOIS STATE MEDICAL SOCIETY.

Change of Date of Meeting.

Important Notice.

The annual meeting for 1890 will be held in Chicago the FIRST Tuesday of May, instead of the *third* Tuesday. This change is made on account of the meeting of the American Medical Association in Nashville on the latter date.

JOHN WRIGHT, President.
J. P. MATHEWS, Vice-President.
D. W. GRAHAM, Perm. Secretary.
C. W. EARLE, Ch'n Com. of Arr.

MISCELLANY.

LETTERS RECEIVED.

Dr. B. F. Harris, Langford, S. Dak.; Dr. L. L. McMurtry, Louisville, Ky.; Geo. P. Rowell & Co., New York; Dr. Jules Rouvier, Beyrouth, Syria; B. Westermann & Co., New York; The Drevet Manufacturing Co., New York; Dr. R. J. Dunglison, Philadelphia; Dr. A. P. Clarke, Cambridge, Mass.; Dr. Leartus Connor, Detroit, Mich.; Dr. R. M. Wyckoff, Brooklyn; Dr. A. Reeves Jackson, Chicago; Dr. E. P. Johnson, Norristown, Pa.; Dr. C. H. March, Wheeler Springs, Ark.; W. F. Holloway, Cuyahoga Falls, O.; Dr. Boesler, Peninsula, O.; Dr. Luis Ezpelosin, Caracas, Venezuela, S. A.; Dr. S. T. Armstrong, Cleveland, O.; Dr. J. A. Allen, Chicago; Stanley Day, New York; Dr. Chas. B. Penrose, Philadelphia; McKesson & Robbins, Maltine Manufacturing Co., New York; Dr. O. H. Haven, Youngstown, O.; Dr. Hal. E. Lyman, Detroit, Mich.; J. Walter Thompson, New York; Horlick's Food Co., Racine, Wis.; Farwell & Rhines, Watertown, N. Y.; W. F. Holloway, Cuyahoga Falls, O.; Geo. S. Davis, Detroit, Mich.; Dr. L. H. Wood, Highlands, Col.; The National Magazine, Chicago; Dr. R. C. Davis, Ann Arbor, Mich.; The Subscription News Co., Chicago; J. H. Bates, New York; N. Murray, Baltimore, Md.; Dr. E. Cutter, New York; Dr. J. C. Vincent, Allegheny, Pa.; Dr. D. F. Morris, Hoemisville, Neb.; Dr. N. Abel, Providence, R. I.; Dr. Richard Douglas, Nashville, Tenn.; Tri-State Sanitary Association, Manafield, O.; Dr. J. E. Shadle, St. Paul, Minn.; Coronado Water Co., Coronado, Cal.; Dr. C. L. Lewis, New York; Dr. Thos. McIlwain, Marion, Ind.; American Pharmaceutical Association, Bridgeton, N. J.; Dr. W. B. Fletcher, Indianapolis, Ind.; Dr. J. F. Jelks, Hot Springs, Ark.; Parke, Davis & Co., Detroit, Mich.; Dr. D. N. Rankin, Allegheny, Pa.; Dr. David S. Booth, Jr., Belleville, Ill.; Galvano-Faradic Co., N. Y.; P. J. Mitchell, Philadelphia; "The Nightingale," New York; Dr. Chas. P. Lyman, Boston, Mass.; J. K. Miles, Philadelphia; Dr. R. C. Davis, Ann Arbor, Mich.; Dr. Chas. W. Earle, Chicago; Dr. Wm. O. H. Danforth, Worcester, Mass.; F. C. Vose, Brooklyn, N. Y.; Dr. A. B. Carpenter, Cleveland, O.; Dr. E. F. Cordell, Baltimore, Md.; Allen & Yates, Buffalo, N. Y.; Dr. R. H. Goodier, Hannibal, Mo.; Dr. H. F. Hazlett, Philadelphia; The Microscopic Journal, Trenton, N. J.; Dr. J. W. Long, Bryan, O.; Dr. A. M. Vail, Rock Rapids, Ia.; P. Blakiston, Son & Co., Philadelphia; Dr. S. K. Giffon, Haverford P. O., Pa.; Dr. J. Ohage, St. Paul, Minn.; Cincinnati Sanitarium, Cincinnati, O.; Chas. H. Philips Chemical Co., New York; Paris Medicine Co., Paris, Tenn.; Cranston & Co., Norwich, Conn.; E. B. Treat, New York; Dr. Harold Moyer, Washington, D. C.; Medical Herald Co., St. Joseph, Mo.; Reed & Carnrick, New York; George P. Lasher, Philadelphia, Pa.; Dr. J. E. Kendall, Parkersburg, W. Va.; Dr. N. D. Gueirry, Trinity P. O., Miss.; Thomas F. Goode, Buffalo Lithia Springs, Va.; Dr. F. W. Mercer, Chicago; Dr. Mary B. Tuttle, Burlington, Ia.; Drs. McKaskey and Love, Hamersville, O., Dr. M. H. Sears, Leadville, Col.; W. T. Keener, Chicago; J. W. Brown, Mottville, N. Y.; Dr. H. H. Foster, Delavan, Ill.; Dr. J. H. Smith, Dallas, Tex.; Carl Jenson, New York; L'Union Médicale du Canada, Montreal, Can.; Battle & Co., Century Chemical Co., St. Louis, Mo.; Dr. F. Johnson, Norristown, Pa.; Dr. Maris Gibson, Wilkesbarre, Pa.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from February 15, 1890, to February 21, 1890.

Lieut.-Col. J. R. Smith, Surgeon, is granted leave of absence for twenty days, to take effect about February 10. Par. 1, S. O. 15, Hdqrs. Dept. Ariz., February 8, 1890.

PROMOTION.

Asst. Surgeon Henry I Raymond, U. S. A., to be Asst. Surgeon with the rank of Captain; after five years' service, in accordance with the Act of June 25, 1874.

RETIRED.

Col. Andrew K. Smith, Surgeon, February 9, 1890. Act of June 30, 1882.